Cisco Catalyst Blade Switch 3130 for Dell and Cisco Catalyst Blade Switch 3032 for Dell Hardware Installation Guide

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Preface

Audience

This guide is for the networking or computer technician responsible for installing the Cisco Catalyst Blade Switch 3130 for Dell or the Cisco Catalyst Blade Switch 3032 for Dell, referred to as the *switch*, in the Dell Modular Server Chassis, referred to as the *server chassis.* We assume that you are familiar with the concepts and terminology of Ethernet and local area networking. If you are interested in more training and education in these areas, learning opportunities including training courses, self-study options, seminars, and career certifications programs are available on the Cisco Training & Events web page:

http://www.cisco.com/web/learning/index.html

Purpose

This guide describes the hardware features of the Cisco Catalyst Blade Switch 3130 for Dell or the Cisco Catalyst Blade Switch 3032 for Dell. It describes the physical and performance characteristics of the switch module, explains how to install it in the server enclosure, and provides troubleshooting information.

This guide does not describe system messages that you might receive or how to configure your switch module. For more information, see the switch software configuration guide, the switch command reference, and the switch system message guide on the Cisco.com Product Documentation home page at:

http://www.cisco.com/en/US/products/ps8742/tsd_products_support_series_home.html

Organization

This guide is organized into these chapters:

Chapter 1, “Product Overview,” is a physical and functional overview of each of the switch modules, including descriptions of the ports, the supported standards, and the LEDs.

Chapter 2, “Switch Installation,” contains the procedures on how to install the switch module in the server enclosure and how to make port connections.

Chapter 3, “Troubleshooting,” describes how to identify and resolve some of the problems that might arise when you install the switch module.

Appendix A, "Technical Specifications," lists the physical and environmental specifications for the switch modules and the regulatory agency approvals.

Appendix B, "Connector and Cable Specifications," describes the connectors, cables, and adapters that can be used to connect to the switch module.

Conventions

This document uses these conventions and symbols for notes, cautions, and warnings:

Note Means *reader take note*. Notes contain helpful suggestions or references to materials not contained in this manual.

Caution Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

Warning

IMPORTANT SAFETY INSTRUCTIONS
This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. SAVE THESE INSTRUCTIONS (Statement 1071)

The safety warnings for this product are translated into several languages in the *Regulatory Compliance and Safety Information for the Cisco Catalyst Blade Switch 3000 Series for Dell* that ships with the product. The EMC regulatory statements are also included in that guide.

Related Publications

These documents provide complete information about the switch module and are available from Cisco.com:

- *Cisco Catalyst Blade Switch 3130 for Dell and Cisco Catalyst Blade Switch 3032 for Dell Getting Started Guide*
- *Regulatory Compliance and Safety Information for the Cisco Catalyst Blade Switch 3000 Series for Dell*
- *Release Notes for the Cisco Catalyst Blade Switch 3130 for Dell and the Cisco Catalyst Blade Switch 3032 for Dell*

Note Before you install, configure, or upgrade the switch module, see the release notes on Cisco.com for the latest information.

- *Cisco Catalyst Blade Switch 3130 for Dell Software Configuration Guide*
- *Cisco Catalyst Blade Switch 3130 for Dell Command Reference*

- *Cisco Catalyst Blade Switch 3130 for Dell System Message Guide*
- *Cisco Software Activation Document for Dell*
- These compatibility matrix documents are available from this Cisco.com site:

  http://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html

  - *Cisco Gigabit Ethernet Transceiver Modules Compatibility Matrix*
  - *Cisco Small Form-Factor Pluggable Modules Compatibility Matrix*
  - *Compatibility Matrix for 1000BASE-T Small Form-Factor Pluggable Modules*

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0.

CHAPTER 1

Product Overview

This chapter provides a functional overview of the Cisco Catalyst Blade Switch 3130 for Dell and the Cisco Catalyst Blade Switch 3032 for Dell, referred to as the *switch* and how to set up and configure your switch. The switches are installed in the Dell Modular Server Chassis—hereafter referred to as the *server chassis*— a system that supports up to sixteen server modules and up to six Ethernet switches.

You can connect the uplink ports to other devices such as switches, routers, Cisco Wireless Access Points, workstations, Cisco IP phones, or other networking equipment. You can also connect standalone servers or PCs to those ports.

These topics are included:

- Switch Features Overview, page 1-1
- Other Features, page 1-3
- Management Options, page 1-8

Switch Features Overview

These are the available switch models:

Model	Description
CBS3032G	1-Gigabit Ethernet nonstacking-capable switch. This switch supports only the IP base software image.
CBS3130G-S	1-Gigabit Ethernet stacking-capable switch.
CBS3130X-S	10-Gigabit Ethernet stacking-capable switch.

The Cisco Catalyst Blade Switch 3032G and 3130G support only the Cisco TwinGig Converter Modules, not the X2 transceiver modules.

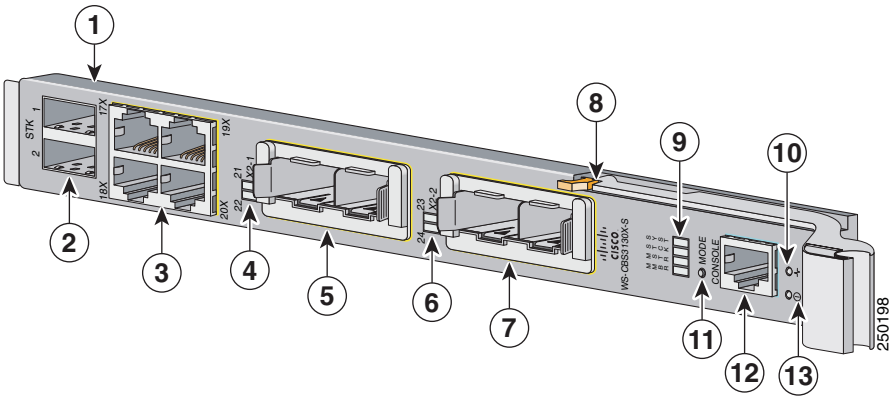
The switch runs the universal software image that has the Cisco IOS code for multiple feature sets. To enable a specific feature set, you must use the software activation feature to install the software license for that feature set. For more information, see the *Cisco Software Activation Document for Dell,* the release notes, and the software configuration guide on Cisco.com.

Each external port has an associated LED. The System Status/ID LED is controlled by the Chassis Management Controller (CMC), also referred to as the Dell Remote Access Controller/Modular Chassis (DRAC/MC) management board. For more information about the LEDs and their meanings, see the switch hardware installation guide on Cisco.com.

For a list of supported modules, see the release notes on Cisco.com. For detailed instructions on installing, removing, and connecting to SFP modules, see the documentation that came with the SFP module.

Figure 1-1 shows the Cisco Catalyst Blade Switch 3130 for Dell. The Cisco Catalyst Blade Switch 3032 for Dell does not have the StackWise Plus ports and Stack, Master, and Member LEDs.

Figure 1-1 CBS3130 Switch Front Panel



1	Switch	**8**	Release latch
2	StackWise Plus ports 1 and 2 (only the CBS3130G-S and CBS3130X-S switches)	**9**	Cisco status LEDs
3	Gigabit Ethernet uplink ports 17 to 20 and port LEDs	**10**	System Status/ID LED[1]
4	LEDs for ports 21 and 22 or for 10-Gigabit Ethernet slot 1	**11**	Mode button
5	Gigabit Ethernet ports 21 and 22 or 10-Gigabit Ethernet slot 1[2]	**12**	Console port
6	LEDs for ports 23 and 24 or for 10-Gigabit Ethernet slot 2	**13**	Power LED
7	10-Gigabit Ethernet slot 2 or Gigabit Ethernet ports 23 and 24		

1. SYST, STCK, MSTR, MMBR.
2. 10-Gigabit Ethernet supported only on the CBS3130X-S.

Table 1-1 describes the switch ports.

Table 1-1 Cisco Catalyst Blade Switch 3130 for Dell and 3032 for Dell Port Descriptions

Port	Description
Ports 1 to 16	Internal Gigabit Ethernet 1000BASE-X downlink ports that connect the switch to the server chassis blades.
Ports 17 to 20	External 10/100/1000BASE-T copper Gigabit Ethernet uplink ports that support auto-MDIX and autonegotiation.
Ports 21 to 24	10-Gigabit Ethernet module slots for use with the Cisco TwinGig Converter Modules and Cisco X2 transceiver modules.

Table 1-1 Cisco Catalyst Blade Switch 3130 for Dell and 3032 for Dell Port Descriptions (continued)

Port	Description
Internal 100BASE-T Ethernet port	The internal 100BASE-T Ethernet port (Fa0) is used only for switch management traffic, not for data traffic. It is connected to the Dell management console through the server chassis backplane connector. Traffic to and from this port is isolated from the switch ports.
Console port	Switch management serial port that uses an RJ-45 connector.
StackWise Plus ports	Stacking cable ports (supported only on the 3130G-S and 3130X-S switches).

Other Features

These sections describe other switch features:

- Switch Console Port, page 1-3
- 10/100/1000 Ports, page 1-3
- 10-Gigabit Ethernet Module Slots, page 1-4
- LEDs, page 1-4
- StackWise Plus Ports, page 1-8
- Power Connectors, page 1-8

Switch Console Port

You can connect the switch through its console port to a PC by using the RJ-45-to-DB9 female cable that ships with the product. If you need a spare cable, you can order a kit (part number ACS-DSBUASYN=) directly from Cisco. If you want to attach the switch to any other device, such as a terminal server, you might need a different cable. For console port and adapter pinout information, see the "Connector and Cable Specifications" section on page B-1.

10/100/1000 Ports

The 10/100/1000 Ethernet ports use standard RJ-45 connectors with Ethernet pinouts. The maximum cable length is 328 feet (100 meters). The 100BASE-TX and 1000BASE-T traffic requires Category 5, Category 5e, or Category 6 unshielded twisted pair (UTP) cable. If you are configuring the port for 10BASE-T traffic, you can use a Category 3 or Category 4 UTP cable.

For more information about the 10/100/1000 Ethernet port connections and specifications, see the Connecting to 10/100/1000 Ethernet Ports, page 2-27, and Appendix B, "Connector and Cable Specifications."

10-Gigabit Ethernet Module Slots

The switch 10-Gigabit Ethernet module slots are used for uplink connections to other switches and routers. The module slots operate in full-duplex mode and use the Cisco TwinGig Converter Module. The CBS 3130X-S uses the hot-swappable Cisco X2 transceiver modules and the Cisco TwinGig Converter Module. The CBS 3130X-S supports these X2 transceiver modules:

- CX4
- LRM
- SR

For more information about the 10-Gigabit Ethernet module slots, see the "Installing Devices in the 10-Gigabit Ethernet Slots" section on page 2-21. For cable specifications, see Appendix B, "Connector and Cable Specifications."

The Cisco Catalyst Blade Switch 3032G and 3130G support only the Cisco TwinGig Converter Modules, not the X2 transceiver modules.

Cisco TwinGig Converter Module

The Cisco TwinGig Converter Module (model CVR-X2-SFP), also known as the *converter module*, has two small form-factor pluggable (SFP) module slots that convert the 10-Gigabit slot into a dual SFP module interface to establish Gigabit uplinks to network devices. The SFP modules have LC connectors for fiber-optic connections or RJ-45 connectors for copper connections.

These are the supported Cisco SFP modules:

- 1000BASE-LX/LH SFP (GLC-LH-SM)
- 1000BASE-SX (GLC-SX-MM)
- 1000BASE-T SFP (GLC-T)

For more information about the Cisco TwinGig Converter Module, see the "Installing X2 Transceiver Modules and Cisco Converter Modules" section on page 2-22 and the "Installing X2 Transceiver Modules and Cisco Converter Modules" section on page 2-22. For cable specifications, see Appendix B, "Connector and Cable Specifications."

LEDs

You can use the switch LEDs to monitor switch activity and performance. The System LEDs are controlled by the Cisco IOS software. The System Status ID/LED is controlled by the Dell software. For graphical representations of the LEDs described in this section, see the device manager GUI.

The LEDs are described in these sections:

- System LED, page 1-5
- Stack LED (Only the CBS3130G-S and CBS3130X-S Switches), page 1-5
- Stack Master LED (Only the CBS3130G-S and CBS3130X-S Switches), page 1-5
- Stack Member LED (Only the CBS3130G-S and CBS3130X-S Switches), page 1-6
- RJ-45 Uplink Port LEDs, page 1-6
- System Status/ID LED, page 1-6

Note The System LED (SYST), stack LED (STCK), Stack Master LED (MSTR), and Stack Member LED (MMBR) are shown as item 9 in Figure 1-1 on page 1-2.

System LED

The System LED (SYST) shows whether the system is receiving power and is functioning properly. Table 1-2 lists the LED colors and their meanings.

Table 1-2 System LED

Color	System Status
Off	System is not powered on.
Blinking green	POST is in progress.
Solid green	System is operating normally.
Amber	System is receiving power but is not functioning properly.

Stack LED (Only the CBS3130G-S and CBS3130X-S Switches)

To see the status of the StackWise Ports, press the Mode button. The stack LED (STCK) is green when the Stackwise Plus ports are up and amber when the ports are down. The 10-Gigabit Ethernet module slot LEDs 23 and 24 show the status for Stackwise Plus ports 1 and 2, respectively (see items 4 and 6 in Figure 1-1 on page 1-2).

When in stack mode, if both 10-Gigabit Ethernet uplink port LEDs are green, the stack is operating at full bandwidth. If one or both of the 10-Gigabit uplink LEDs are not green, the stack is not operating at full bandwidth.

Stack Master LED (Only the CBS3130G-S and CBS3130X-S Switches)

The Stack Master LED (MSTR) shows the stack master status. Table 1-3 lists the LED colors and their meanings. (Only the CBS3130G-S and CBS3130X-S switches.)

Table 1-3 Stack Master LED

Color	Description
Off	Switch is not the stack master.
Green	Switch is the stack master or a standalone switch.
Amber	An error occurred during stack master election or another type of stack error occurred.

Stack Member LED (Only the CBS3130G-S and CBS3130X-S Switches)

The Stack Member LED (MMBR) shows the switch stack membership number, which ranges from 1 to 9. The Stack Member LED blinks a number of times equal to the membership number of the switch, pauses, and then repeats the process until you turn off stack mode.

Table 1-4 lists the LED colors and their meanings when stack mode is on. When stack mode is off, the Member LED is off.

Table 1-4 Member LED With Stack Mode On

Color	Description
Off	Pause between blinking stack membership number. Duration is 5 seconds. After pause, LED blinks green.
Blinking Green	A total of *n* on-off cycles with *n* = switch stack membership number in range 1 to 9. After *n* on-off cycles, blinking stops, and LED turns off.

RJ-45 Uplink Port LEDs

The external 10/100/1000BASE-T copper Gigabit Ethernet uplink port LEDs display link and activity information about each individual port. These LEDs are on the top left and bottom left or on the top right and bottom right, respectively, of each RJ-45 port (see item 3 in Figure 1-1 on page 1-2). Table 1-5 describes the port link LED colors and their meanings.

Table 1-5 Meaning of Port Link LED Colors

LED Color	Meaning
Off	No link established.
Solid green	Link established, no activity.
Blinking green	Traffic on an established link.
Amber	Port disabled, either error or STP[1] disabled.
Alternating Green/Amber	Link fault.

1. STP: Spanning Tree Protocol.

The port activity LED blinks green to indicate traffic.

System Status/ID LED

The System Status/ID LED is controlled by the server chassis software. See Table 1-6 for descriptions of this LED.

Table 1-6 Meaning of System Status ID/LED Colors

LED Color	Meaning
Blue on	Switch stack master.
Blue off	Switch stack member.
Blinking amber	The CMC[1] and the switch are not communicating properly.

1. CMC = Chassis Management Controller.

10-Gigabit Ethernet Module Slot Port LEDs

The behavior of the 10-Gigabit Ethernet module slot port LEDs depends on whether an X2 module or a converter module is installed and whether you pressed the Mode button to place the switch module in stack mode.

X2 Module Installed (Only the CBS3130X-S Switch)

The 10-Gigabit Ethernet module slot LEDs 21 to 22 show the status for ports 21 to 22. The 10-Gigabit Ethernet module slot LEDs and 23 and 24 show the status for ports 23 and 24. (See items 4 and 6 in Figure 1-1 on page 1-2.) When an X2 module is installed, each pair of LEDs behaves as one.

LEDs 21 and 22 represent the X2 module in slot 21 to 22. LEDs 23 and 24 represent the X2 module in slot 23 to 24.

Table 1-7 describes the 10-Gigabit Ethernet slot port LED colors and their meanings.

Table 1-7 Meaning of 10-Gigabit Ethernet Module Slot LED Colors

LED Color	Meaning
Off	No link established.
Solid green	Link established, no activity.
Blinking green	Activity (traffic) on an established link.
Amber	Port disabled, either error or STP disabled.
Alternating green/amber	Link fault.

Converter Module Installed

When a converter module is in one of the 10-Gigabit Ethernet module slots, the LEDs show the status of the SFP modules that are in the converter module. If one converter module is installed in slots 21 and 22, and one converter module is installed in slots 23 and 24, this is how the LEDs correspond to the installed SFP modules:

1. LED 21 corresponds to the SFP module in the top slot.
2. LED 22 corresponds to the SFP module in bottom slot.
3. LED 23 corresponds to the SFP module in the top slot.
4. LED 24 corresponds to the SFP module in bottom slot.

See Table 1-7 for a description of the 10-Gigabit Ethernet slot port LED colors and their meanings.

LED Behavior in Stack Mode

Whether an X2 module or a converter module is installed in the 10-Gigabit Ethernet module slots, the LEDs 23 and 24 show the status of the StackWise Plus ports 1 and 2, respectively. LEDs 21 and 22 are off when in stack mode. Table 1-8 describes the LED colors in stack mode and their meanings.

Table 1-8 Meaning of LEDs 22 and 24 Colors in Stack Mode

LED Color	Meaning
Solid green	Stack port is connected. If both LEDs are green, the stack is running at full speed.
Amber	Stack port is not connected.

StackWise Plus Ports

The stacking-capable switches ship with a 1-meter Stackwise Plus cable that you can use to connect the Stackwise Plus ports.

Caution Use only approved cables, and connect only to similar Cisco equipment. Equipment might be damaged if connected to nonapproved Cisco cables or equipment.

You can order these StackWise Plus cables from your sales representative:

- CAB-STK-E-0.5M= (0.5-meter cable)
- CAB-STK-E-1M= (1-meter cable)
- CAB-STK-E-3M= (3-meter cable)

Power Connectors

The blade server chassis controls power to the switch. After the blade server software detects the presence of the switch, it moves the switch to the full power state. The switch software is not involved in power control functions.

Management Options

This section describes management options for the switch:

- Using the Device Manager, page 1-8
- Using the Dell CMC, page 1-9
- Using the Command-Line Interface, page 1-9
- Other Management Options, page 1-10

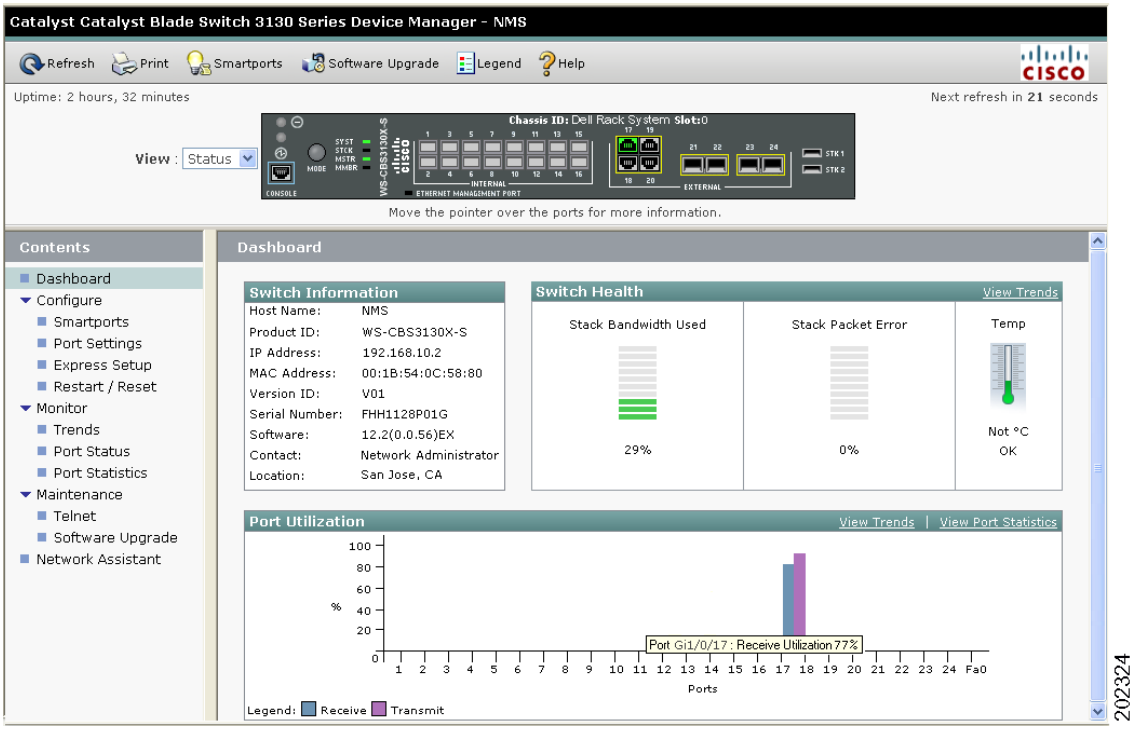
Using the Device Manager

The simplest way to manage the switch is by using the device manager that is in the switch memory. This is a web interface that offers quick configuration and monitoring. You can access the device manager from anywhere in your network through a web browser.

Follow these steps:

1. Launch a web browser on your PC or workstation.
2. Enter the switch IP address in the web browser, and press **Enter**. The device manager page appears. (See Figure 1-2.)

Figure 1-2 Device Manager Page



3. Use the device manager to perform basic switch configuration and monitoring. Refer to the device manager online help for more information.
4. For more advanced configuration, download and run the Cisco Network Assistant, which is described in the next section.

Using the Command-Line Interface

The switch command-line interface (CLI) is based on Cisco IOS software and enhanced to support desktop-switching features. You can fully configure and monitor the switch from the CLI. You can access the CLI either by connecting your management station directly to the switch console port or by using Telnet from a remote management station. Refer to the switch command reference on Cisco.com for more information.

Using the Dell CMC

See the Dell documentation for information about using the CMC.

Other Management Options

You can use SNMP management applications such as CiscoWorks Small Network Management Solution (SNMS) to configure and manage the switch. You also can manage it from an SNMP-compatible workstation that is running platforms such as HP OpenView or SunNet Manager.

Network Configurations

Refer to the switch software configuration guide on Cisco.com for an explanation of network configuration concepts. The software configuration guide also provides examples of network configurations that use the switch to create dedicated network segments that are interconnected through Gigabit Ethernet connections.

CHAPTER 2

Switch Installation

This chapter provides instructions on how to install your Cisco Catalyst Blade Switch 3130 for Dell and the Cisco Catalyst Blade Switch 3032 for Dell, referred to as the *switch*. The switch modules are installed in the Dell Modular Server Chassis, referred to as the *server chassis*, a system that supports up to sixteen server modules and up to six Ethernet switches. You install the switch in one of the chassis I/O module bays on the rear panel of the server chassis.

This chapter also describes how to interpret the power-on self-test (POST) that ensures proper operation and how to make connections to the switch module.

Read the topics and perform the procedures in this order:

- Safety Warnings, page 2-1
- Dell Modular Server Chassis Architecture, page 2-3
- Installing the Switch in the Server Chassis, page 2-4
- Configuring the Switch, page 2-7
- Managing the Switch, page 2-15
- Planning and Creating a Switch Stack (Only 3130G-S and 3130X-S Switches), page 2-17
- Installing Devices in the 10-Gigabit Ethernet Slots, page 2-21
- Connecting to 10/100/1000 Ethernet Ports, page 2-27
- Where to Go Next, page 2-27

Safety Warnings

These warnings are translated into several languages in the *Regulatory Compliance and Safety Information for the Cisco Catalyst Blade Switch 3000 Series for Dell* that ships with the product. The EMC regulatory statements are also included in that guide.

Warning **To prevent the switch from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of 104°F (40°C). To prevent airflow restriction, allow at least 3 inches (7.6 cm) of clearance around the ventilation openings.** Statement 17B

Warning **Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals.** Statement 43

Warning **Ethernet cables must be shielded when used in a central office environment.** Statement 171

Warning **Do not work on the system or connect or disconnect cables during periods of lightning activity.** Statement 1001

Warning **Read the installation instructions before connecting the system to the power source.** Statement 1004

Warning **Class 1 laser product.** Statement 1008

Warning **Only trained and qualified personnel should be allowed to install, replace, or service this equipment.** Statement 1030

Warning **Ultimate disposal of this product should be handled according to all national laws and regulations.** Statement 1040

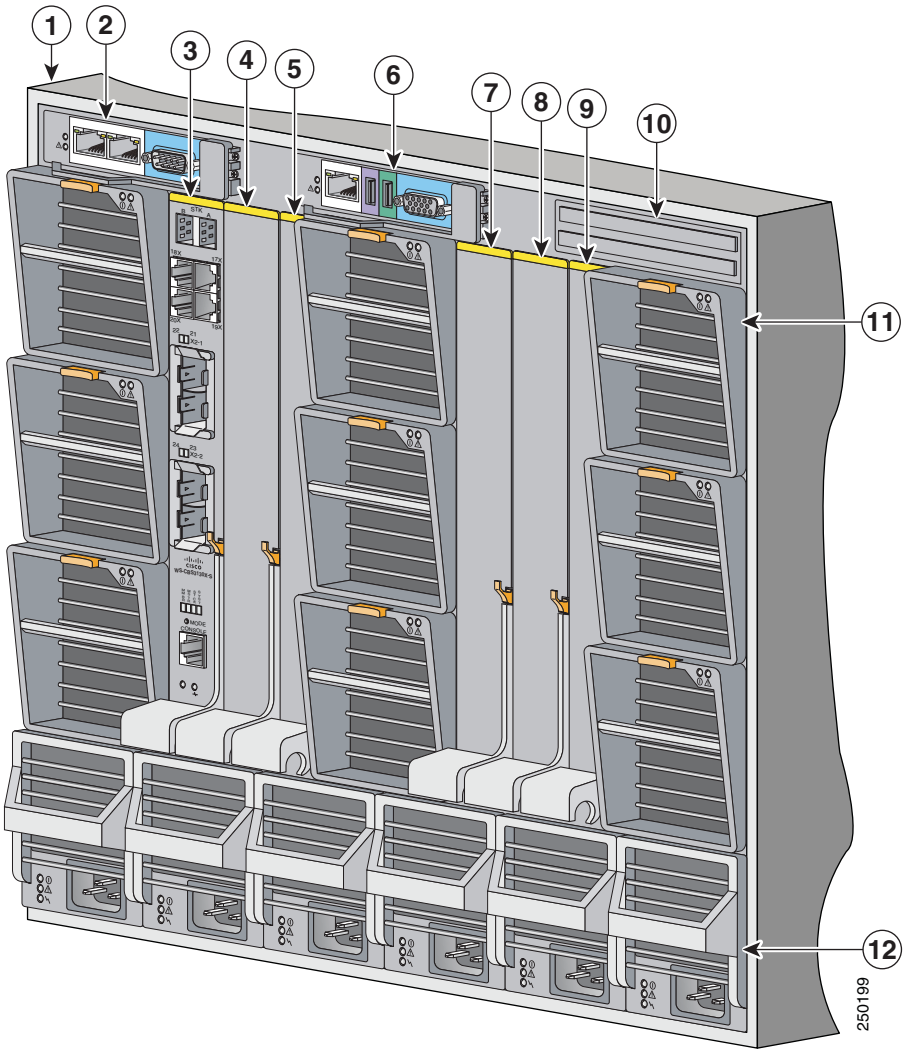
Warning **For connections outside the building where the equipment is installed, the following ports must be connected through an approved network termination unit with integral circuit protection. 10/100/1000 Ethernet** Statement 1044

Warning **Installation of the equipment must comply with local and national electrical codes.** Statement 1074

Dell Modular Server Chassis Architecture

The six chassis I/O module bays are on the rear panel (see Figure 2-1).

Figure 2-1 Dell Modular Server Chassis Rear Panel



1	Dell server chassis	**7**	I/O module bay C2
2	Primary CMC[1] module	**8**	I/O module bay B2
3	Switch installed in I/O module bay A1	**9**	I/O module bay A2
4	I/O module bay B1	**10**	Secondary CMC module[2]
5	I/O module bay C1	**11**	Fan modules
6	Optional iKVM[3] module	**12**	Power supplies

1. CMC: Chassis Management Controller.
2. This module is optional.
3. iKVM: integrated keyboard video mouse.

Installing the Switch in the Server Chassis

See the getting started guide that ships on CD-ROM with the product for information about what ships with your switch.

Before you install the switch in the server chassis, consider these points:

- Review and become familiar with the safety and handling guidelines specified in the *Product Information Guide*.
- Review the *Regulatory Compliance and Safety Information for the Cisco Catalyst Blade Switch 3000 Series for Dell* that ships with this product.
- If you plan to create a switch stack, review the "Planning and Creating a Switch Stack (Only 3130G-S and 3130X-S Switches)" section on page 2-17 before you install the switch and run the initial configuration setup program.
- To help ensure proper cooling and system reliability, keep these points in mind:
  - Each chassis I/O module bay must contain either a module or an input/output module (IOM) blank.
  - Fan modules must be operating in the fan module bays to ensure proper cooling of the switch modules. See the Dell server chassis documentation for information about how to ensure that the modules are properly cooled.
  - When you remove a hot-swap module, you must replace it with an identical module or an IOM blank within 1 minute of removal.
  - You can install the switch into any of the module bays. If you install a switch in the B or C module bay, the Ethernet mezzanine cards must be installed in the blade server.
  - The dust covers should always remain in place unless a module is installed in the slot.

Caution To prevent electrostatic-discharge (ESD) damage when you install the switch, follow your normal board and component handling procedures.

When you install a switch, you do not need to power down the server chassis.

Be sure to observe these requirements:

- For copper Ethernet ports, cable lengths from the switch module to connected devices can be up to 328 feet (100 meters).
- See the documentation for the SFP module for more information about cable specifications for the SFP module connections. Also see the "SFP Module Cable Specifications" section on page B-6. Each port must match the wave-length specifications on the other end of the cable, and the cable must not exceed the stipulated cable length for reliable communications.

  When you use shorter lengths of single-mode fiber-optic cable, you might need to insert an inline optical attenuator in the link to avoid overloading the receiver.
- Operating environment is within the ranges listed in Appendix A, "Technical Specifications."
- Cabling is away from sources of electrical noise, such as radios, power lines, and fluorescent lighting fixtures. Make sure the cabling is safely away from other devices that might damage the cables.

Follow these steps to install the switch into the server chassis:

Step 1 Obtain and make note of this information from your network administrator before you begin the switch installation:

- Switch IP address
- Subnet mask (IP netmask)
- Default gateway (router)
- Enable secret password (encrypted)
- Enable password (not encrypted)
- Telnet password
- SNMP community strings (optional)

Step 2 Select a chassis I/O module bay in which to install the switch. Follow the prerequisites listed in the "Dell Modular Server Chassis Architecture" section on page 2-3.

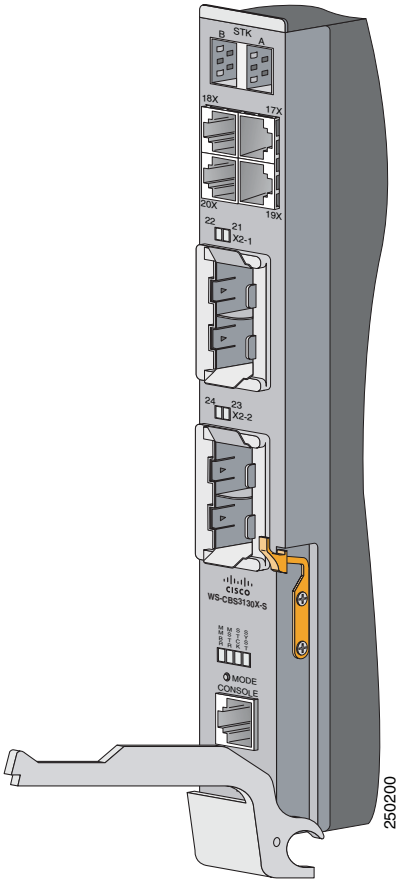
Step 3 Remove the IOM blank from the selected bay, and store it for future use.

Step 4 If you have not already done so, touch the static-protective package that contains the switch to an unpainted metal part of the server chassis for at least 2 seconds.

Step 5 Remove the switch from its static-protective package.

Step 6 Ensure that the release latch on the switch is in the open position or perpendicular to the module (see Figure 2-2):

Figure 2-2 Release Latch in Open Position

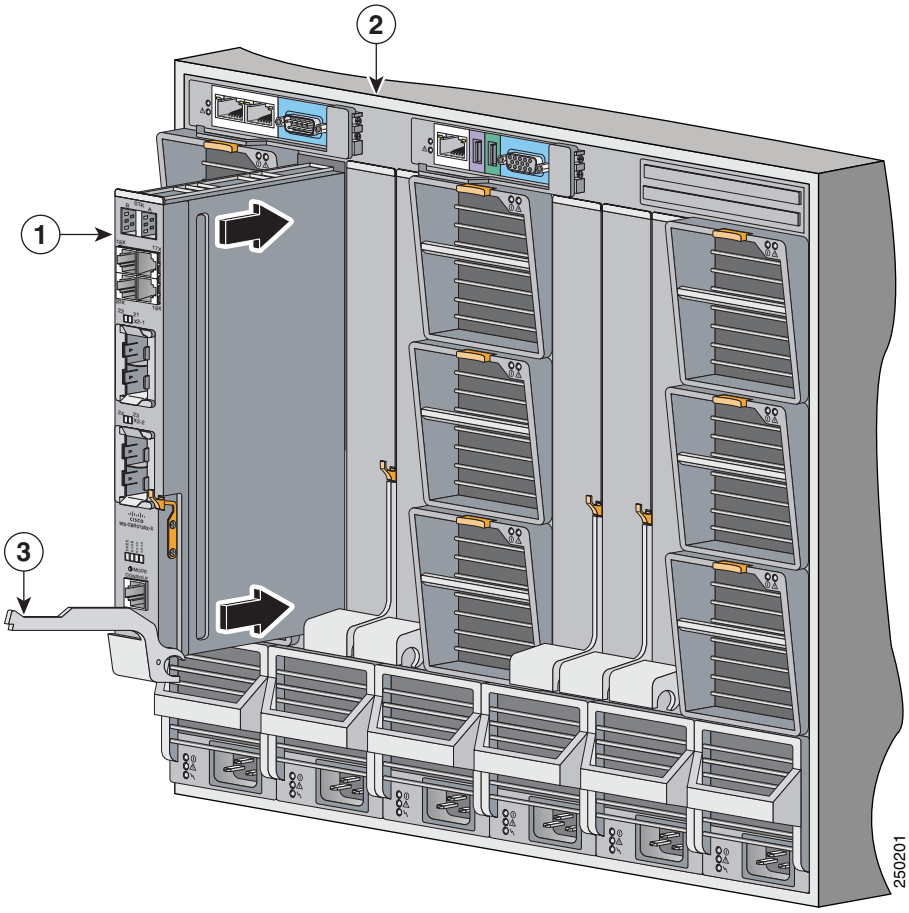


Step 7 Slide the switch into the appropriate bay until it stops.

Step 8 Push the release latch on the front of the switch to the closed position.

Figure 2-3 shows the switch being inserted into the server chassis.

Figure 2-3 Inserting the Switch into the Server Chassis



1	Switch	**3**	Release latch
2	Server chassis		

Configuring the Switch

To run the system configuration dialog, you must first connect the switch to a PC to run a terminal emulation program. You can connect the switch to the PC either through the switch console port or through the CMC console port. Instructions for these procedures are included in this section.

If you connect to the switch through the CMC, the switch console port is disabled. After you have completed the configuration procedure, you must use the disconnect command to close the active console port and re-enable the switch console port. Enter **logout** to log out of the switch, then enter **Ctrl ** to disconnect the CMC from the switch.

Follow one of these procedures:

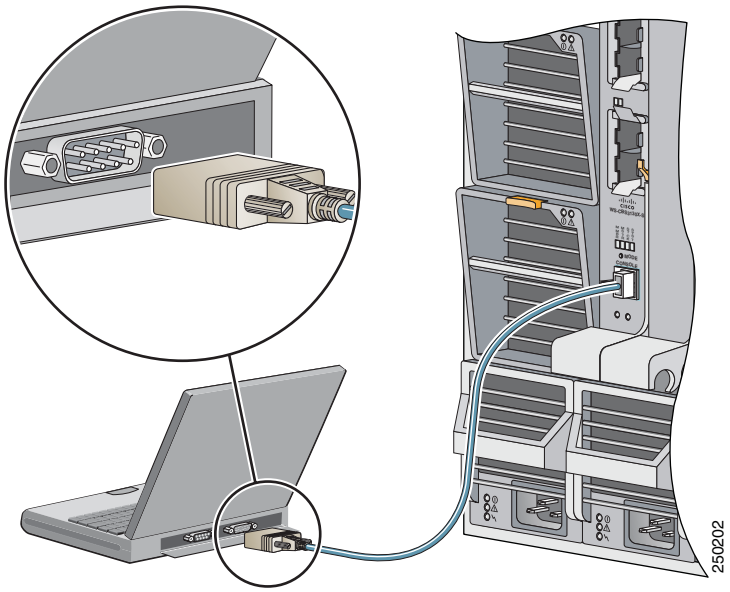
- To run the terminal emulation program through the switch console port, go to "Connecting through the Switch Console Port" section on page 2-8.
- To run the terminal emulation program through the CMC port, go to "Connecting through the CMC" section on page 2-9.

Connecting through the Switch Console Port

Follow these steps when connecting through the switch console port:

Step 1 Connect one end of the console cable to the switch console port. Connect the other end of the cable to the serial port of the PC that is running the terminal emulation application. (See Figure 2-4.)

Figure 2-4 Connecting To the Switch Console Port



Step 2 Start the terminal emulation session so that you can see the output display from the power-on self-test (POST). The terminal-emulation software—a PC application such as Hyperterminal or ProcommPlus—makes communication between the switch and your PC or terminal possible.

Configure the baud rate and character format of the PC or terminal to match these console port default characteristics:

- 9600 baud
- 8 data bits
- 1 stop bit
- No parity
- None (flow control)

Step 3 Go to the "Waiting for POST to Complete" section on page 2-10 to finish configuring the switch.

Connecting through the CMC

Follow these steps when connecting through the CMC:

Step 1 Connect one end of a DB-9 null-modem or crossover cable to the RS-232 console serial port of the CMC. Connect the other end of the cable to the RS-232 console serial port of the PC.

Step 2 On the PC terminal emulation program:

a. Set the data format to 8 data bits, 1 stop bit, and no parity.

b. Set the terminal emulation speed to 115200 baud.

c. Set **Flow Control** to none.

d. Under **Properties**, select **VT100** for Emulation mode.

e. Select Terminal keys for Function, Arrow, and Ctrl keys. Ensure that the setting is for Terminal keys (not Windows keys).

When using HyperTerminal with Microsoft Windows 2000, ensure that you have Windows 2000 Service Pack 2 or later installed. With Windows 2000 Service Pack 2, the arrow keys function properly in the HyperTerminal VT100 emulation. Go to www.microsoft.com for information on Windows 2000 service packs.

Step 3 On the console monitor, the CMC application displays a login screen. Log in by using these defaults:
username **root**
password **calvin**

The CMC command-line interface (CLI) command prompt **CMC:** appears.

Note If the server chassis is off, use this command to power it on:
racadm chassisaction -m chassis powerup

The switch inserted into the chassis I/O bay automatically powers on when the server chassis powers on. For more information on configuring the server chassis by using the CLI, see the *Dell Remote Access Controller/Modular Chassis User's Guide*.

Power-cycle the switch by using this command:
racadm chassisaction -m switch-N powercycle

where *N* is the chassis I/O module bay number in which the switch is inserted.

Module Bay	Substitute for *N*
A1	1
A2	2
B1	3
B2	4
C1	5
C2	6

Step 4 Redirect the CMC console to the switch internal serial console interface. Enter this command at the CMC command prompt:

```
connect switch-N
```

where *N* is the chassis I/O module bay number in which the switch is inserted.

To return to the command prompt, press this key sequence:
Enter Ctrl ** (Press **Enter, and press the Control key and the backslash key together.)

Step 5 Go to the "Waiting for POST to Complete" section on page 2-10 to finish configuring the switch.

Waiting for POST to Complete

Follow these steps to verify that POST completes successfully:

Step 1 Wait for the switch to complete the POST. During POST, the LEDs blink while tests verify that the switch functions properly. Wait for the switch to complete POST, which can take several minutes.

Step 2 Verify that POST has completed by confirming that the SYST LED remains green. If the switch fails POST, the SYST LED turns amber. See Figure 1-1 on page 1-2 for the location of the SYST LED.

POST errors are usually fatal. Call Cisco Customer Support immediately if your switch fails POST.

Step 3 Wait for the switch to complete flash initialization. When you see the prompt `Press Return to Get Started!`, press **Return** or **Enter**.

If you do not see the prompt `Press Return to Get Started!`, be sure that you have set the baud rate on the terminal to 9600 baud.

Step 4 Make sure that the System Status/ID LED on the switch is off. This means that the switch is operating properly.

Step 5 See the "Completing the Initial Configuration" section on page 2-10 for instructions on setting up and initially configuring the switch.

Step 6 If the switch obtains an IP address through the Fa0 port, you can use the device manager to configure the switch. See the "Using the Device Manager to Configure the Switch" section on page 2-13.

Completing the Initial Configuration

Follow these steps to complete the setup program and to create an initial configuration for the switch. For information about automatically configuring the switch, see the "Assigning the Switch IP Address and Default Gateway" chapter in the switch configuration guide on Cisco.com.

Step 1 After you have pressed **Enter** or **Return** after the prompt to start the initial configuration setup program, enter **yes** at these prompts:

```
Would you like to terminate autoinstall? [yes]: yes
--- System Configuration Dialog ---
Continue with configuration dialog? [yes/no]: yes
```

```
At any point you may enter a question mark '?' for help.
Use ctrl-c to abort configuration dialog at any prompt.
Default settings are in square brackets '[]'.

Basic management setup configures only enough connectivity
for management of the system, extended setup will ask you
to configure each interface on the system

Would you like to enter basic management setup? [yes/no]: yes
Configuring global parameters:
```

Step 2 Enter a hostname for the switch after the prompt, and press **Return**.

The hostname is limited to 20 characters. Do not use *-n*, where n is a number, as the last character in a host name for any switch.

Step 3 Enter an enable secret password, and press **Return**.

The password can be from 1 to 25 alphanumeric characters, can start with a number, is case sensitive, allows spaces, but ignores leading spaces. The secret password is encrypted, and the enable password is in plain text.

Step 4 Enter an enable password, and press **Return**.

Step 5 Enter a virtual terminal (Telnet) password, and press **Return**.

The password can be from 1 to 25 alphanumeric characters, is case sensitive, allows spaces, but ignores leading spaces.

Step 6 (Optional) Configure Simple Network Management Protocol (SNMP) by responding to the prompts.

1. To configure SNMP later, press **Return** (which applies the default of no). If you accept the default, you can configure SNMP later through the CLI.

   ```
   Configure SNMP Network Management? [no]:
   ```

2. To configure SNMP now, enter **yes**.

   ```
   Configure SNMP Network Management? [no]: yes
   Community string [public]: public
   ```

Step 7 Enter the interface name (physical interface or VLAN name) of the interface that connects to the management network, and press **Return**.

Enter **vlan1** for the interface name at this prompt.

Step 8 To configure the interface, enter **Yes** after the prompt, and then enter the switch IP address and subnet mask. Press **Return**.

The IP address and subnet mask shown here are examples:

```
Configuring interface Vlan1:
Configure IP on this interface? [yes]:
IP address for this interface [10.0.0.1]:
Subnet mask for this interface [255.255.255.0] : 255.255.255.0
Class A network is 10.0.0.1, 21 subnet bits; mask is /21
```

Step 9 Enter **no** when the prompt asks you if you would like to enable the switch as a cluster command switch. This switch will be a standalone switch.

```
Would you like to enable as a cluster command switch? [yes/no]: no
```

Note Clustering is not supported.

You have now completed the initial configuration of the switch, and the switch displays its initial configuration. An example of the output is shown here:

```
The following configuration command script was created:
hostname switch1
enable secret 5 $1$cagJ$e4LP91PNazfdADoNAZm6y0
enable password enable_password
line vty 0 15
password terminal-password
snmp-server community public
!
!
interface Vlan1
no shutdown
ip address 10.0.0.1 255.255.255.0
!
interface FastEthernet0
shutdown
no ip address
!
interface GigabitEthernet1/0/1
!
interface GigabitEthernet1/0/2
!
. . . (output truncated)
!
interface TenGigabitEthernet1/0/1
!
interface TenGigabitEthernet1/0/2
!
end
```

Step 10 These choices appear:

```
[0] Go to the IOS command prompt without saving this config.

[1] Return back to the setup without saving this config.

[2] Save this configuration to nvram and exit.

If you want to save the configuration and use it the next time the switch reboots, save it
in NVRAM by selecting option 2.

Enter your selection [2]:2
```

Make your selection, and press **Return**.

Step 11 Disconnect the server chassis serial port or the switch console port from the PC. See the "Managing the Switch" section on page 2-15 for information about configuring and managing the switch.

Using the Device Manager to Configure the Switch

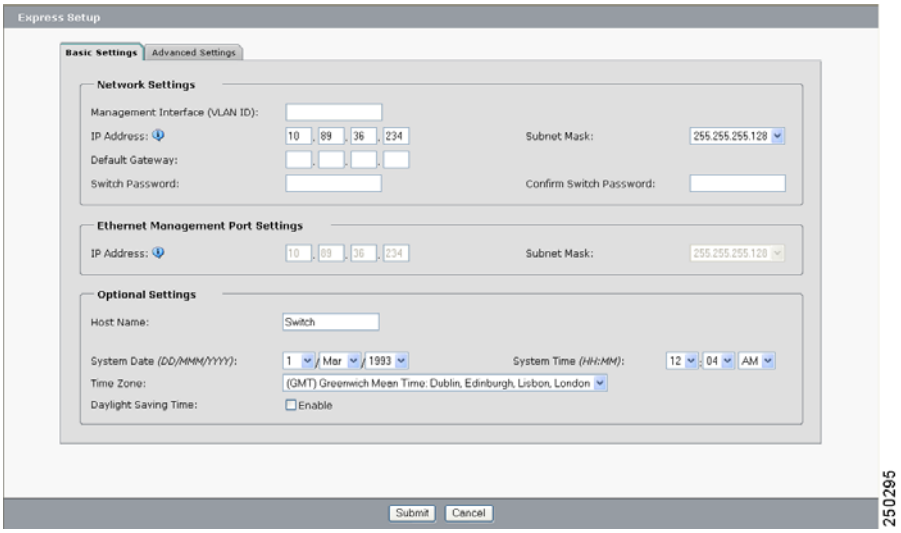
Follow these steps to set up the switch through the device manager. In a browser window, enter the IP address that the Fa0 port assigned to the switch. Before you complete the setup program, obtain the default gateway IP address and the switch password from your system administrator. You can configure these optional parameters through the Express Setup program:

- Telnet access password
- Names of the SNMP read and write community strings if you are going to use a network-management program like CiscoWorks
- Host name, system contact, and system location
- System time, time zone, Daylight Savings Time enable

Step 1 On the left side of the device manager GUI, choose **Configuration > Express Setup**.

The Express Setup page appears (see Figure 2-5 and Figure 2-6). (Close or minimize the device manager Help window.)

Figure 2-5 Express Setup Page

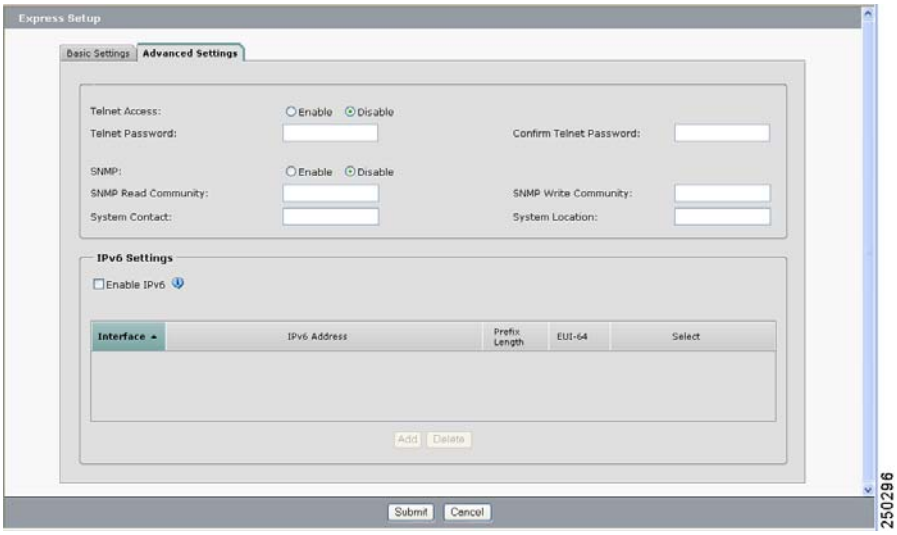


Step 2 Enter this information in the **Network Settings** fields.

- In the **Default Gateway** field, enter the IP address for the default gateway (router).
- In the **Switch Password** field, enter your password. The password can be from 1 to 25 alphanumeric characters, can start with a number, is case sensitive, allows embedded spaces, but does not allow spaces at the beginning or end.
  In the **Confirm Switch Password** field, enter your password again.

You can enter the **Optional Settings** information now or enter it later by using the device manager interface.

Figure 2-6 Advanced Settings Tab



Step 3 In the **Host Name** field, enter a name for the switch module. The host name is limited to 31 characters; embedded spaces are not allowed.

Step 4 In the **System Date** and **System Time** fields, enter the current date and time, or use the down arrows to select them.

Step 5 In the **Time Zone** field, use the down arrow to choose your time zone.

Step 6 Click **Enable** in the **Daylight Savings Time** field to enable this feature.

Step 7 In the **Telnet Access** field, click **Enable** if you are going to use Telnet to manage the switch module by using the CLI. If you enable Telnet access, you must enter a Telnet password.

Note If you plan to create a switch stack, enable Telnet access so that you can use the CLI to set this switch to the highest priority (usually 15). See the "Planning and Creating a Switch Stack (Only 3130G-S and 3130X-S Switches)" section on page 2-17 for more information about creating a switch stack.

Step 8 In the **Telnet Password** field, enter a password. The Telnet password can be from 1 to 25 alphanumeric characters, is case sensitive, allows embedded spaces, but does not allow spaces at the beginning or end. In the **Confirm Telnet Password** field, re-enter the Telnet password.

Step 9 In the **SNMP** field, click **Enable** to enable Simple Network Management Protocol (SNMP). Enable SNMP only if you plan to manage switches by using CiscoWorks 2000 or another SNMP-based network-management system.

Step 10 If you enable SNMP, you must enter a community string in the **SNMP Read Community** field, the **SNMP Write Community** field, or both. SNMP community strings authenticate access to MIB objects. Embedded spaces are not allowed in SNMP community strings. When you set the SNMP read community, you can access SNMP information, but you cannot change it. When you set the SNMP write community, you can both access and change SNMP information.

Step 11 In the **System Contact** field, enter the name of the person who is responsible for the switch module. In the **System Location** field, enter the wiring closet, floor, or building where the switch module is located.

Step 12 Depending on which software license you choose, you can enable IPv6 in the IPv6 Settings area.

- Click **Enable IPv6** to enable it.
- In the Interface column, choose the interface for which you want to set an IPv6 address, and complete the other fields in this table.

Step 13 Click **Submit** to save your settings, or click **Cancel** to clear your settings.

You can close this window.

Configuring the Switch Stack Master

If you plan to create a switch stack, we recommend that you set the first configured switch as the stack master. To do this, you must assign the highest priority value to that switch. To assign a priority value after you have installed and initially configured the first switch, follow these steps:

Step 1 Launch a Telnet session.

Step 2 Enter **enable**.

Step 3 Enter **configure terminal**.

Step 4 Enter **switch 1 priority 15**.

Step 5 At the prompt, press **Return**.

Step 6 Enter **end** to exit this mode.

Step 7 Enter **copy running-configuration startup-configuration** to save this setting.

Step 8 At the prompt, press **Return**.

Step 9 To verify that this switch is set as the master, enter the **show switch** user EXEC command.

For more information about creating switch stacks, see the "Planning and Creating a Switch Stack (Only 3130G-S and 3130X-S Switches)" section on page 2-17.

Managing the Switch

After completing the initial setup and configuration steps, use the CLI, the device manager, or other management options described in this section for further configuration.

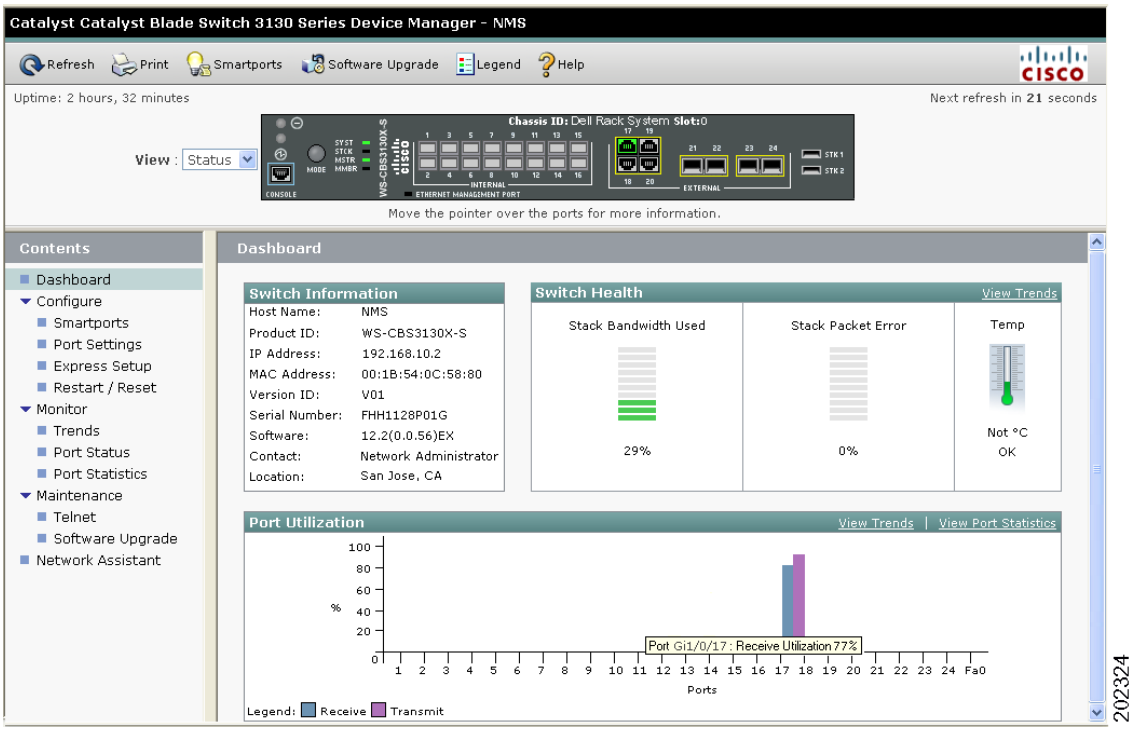
Using the CLI

After setting up and installing the switch in your network, you can enter Cisco IOS commands and parameters through the CLI. Access the CLI either by connecting your PC directly to the switch console port or through a Telnet session from a remote PC or workstation. You can also access the CLI through the server chassis serial console port of the active Dell CMC. For more information, see the hardware installation guide on Cisco.com.

Using the Device Manager

The simplest way to manage the switch is by using the device manager that is in the switch memory. This is an easy-to-use web interface that offers quick configuration and monitoring. You can access the device manager from anywhere in your network through a web browser. The device manager dashboard is shown in Figure 2-7.

Figure 2-7 Device Manager Dashboard



Follow these steps to access the device manager:

Step 1 Launch a web browser on your PC or workstation.

Step 2 Enter the switch IP address in the web browser, and press **Enter**. The device manager page appears.

Step 3 Use the device manager to perform basic switch configuration and monitoring. See the device manager online help for more information.

Other Management Options

You can use SNMP management applications such as CiscoWorks. You also can manage it from an SNMP-compatible workstation that is running platforms such as SunNet Manager.

Planning and Creating a Switch Stack (Only 3130G-S and 3130X-S Switches)

A *switch stack* is a set of up to nine stacking-capable switches that are connected through their StackWise Plus ports. One switch controls the operation of the stack and is called the *stack master*. The stack master and the other switches in the stack are *stack members*. Layer 2 and Layer 3 protocols present the entire switch stack as a single entity to the network. Stacking is optional.

When switches are not stacked, each acts as a standalone switch. For general concepts and procedures to manage switch stacks, see the switch software configuration guide and command reference on Cisco.com.

Caution The Cisco Catalyst Blade Switch 3130 for Dell does not support switch stacks with other types of blade switches as members. Combining the Cisco Catalyst Blade Switch 3130 for Dell with other types of blade switches in a switch stack might cause the switch to work improperly or to fail.

Before you connect the switches in a stack, keep in mind these stacking guidelines:

- You should install the stack master switch and run the initial setup program on that switch before you connect the StackWise Plus cables to other stack members. We recommend that you assign the highest priority value to the switch that you prefer to be the stack master. This ensures that the switch is re-elected as stack master if a re-election occurs. As you add new switches to the stack, they automatically become stack members.

  To assign a priority value after you have installed and initially configured the first switch, see the "Configuring the Switch Stack Master" section on page 2-15.
- When you connect the StackWise Plus cables and create a stack, you can communicate with the master switch internal Ethernet management port (Fa0) port, but not the Fa0 ports of the member switches. Only one Fa0 interface can be active, and that interface is the one on the active stack master.
- For conditions that might cause a stack master re-election or to manually elect the stack master, see the "Managing Switch Stacks" chapter in the switch software configuration guide on Cisco.com.
- You can stack any combination of up to nine Catalyst 3130G-S and 3130X-S switches. You can stack only the Catalyst 3130 switches; other switches cannot be stacked.
- Before installation, verify the StackWise Plus cable length. Depending on your configuration, you might need different sized cables. If you do not specify the length of the StackWise Plus cable when you order your product, the 1-meter cable is supplied. If you need the 0.5-meter cable or the 3-meter cable, you can order these StackWise Plus cables from your sales representative:
  - CAB-STK-E-0.5M= (0.5-meter cable)
  - CAB-STK-E-1M= (1-meter cable)
  - CAB-STK-E-3M= (3-meter cable)

For switch dimensions and additional stacking guidelines, see the switch hardware installation guide on Cisco.com. For concepts and procedures to manage switch stacks, see the switch software configuration guide on Cisco.com.

To create a switch stack:

Step 1 Install the member switches if you have not already done so.

Step 2 Connect the StackWise Plus cables as described in the "Planning and Creating a Switch Stack (Only 3130G-S and 3130X-S Switches)" section on page 2-17.

Step 3 Configure the member switches through the master switch by using the CLI.

Stack Cabling Configurations

This section describes the recommended configurations for stacking the switches by using the supplied 1-meter StackWise cable.

In this example, the stack uses the 1-meter StackWise Plus cable to make redundant connections between two Catalyst 3130 switches in a single chassis (see Figure 2-8).

Figure 2-8 Stacking Two Switch Modules in a Single Blade Server to Create One Stack

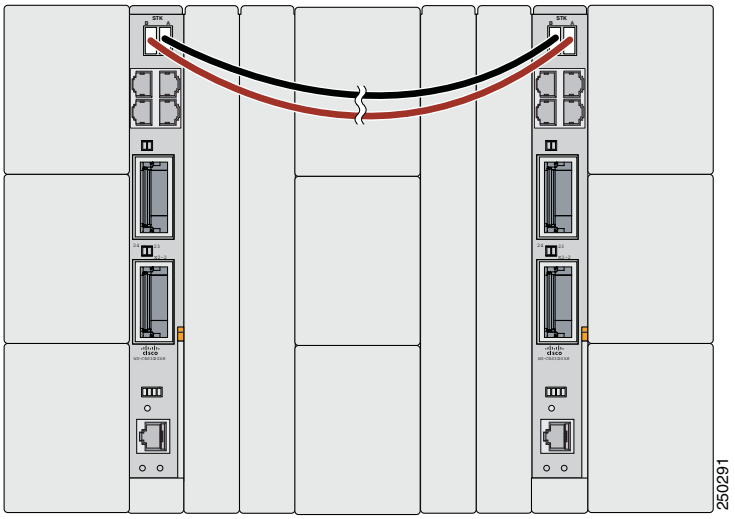


Figure 2-9 is an example of a recommended configuration in which eight switch modules create a switch stack in four blade servers.

Figure 2-9 Stacking Eight Switch Modules in Four Blade Servers to Create One Stack

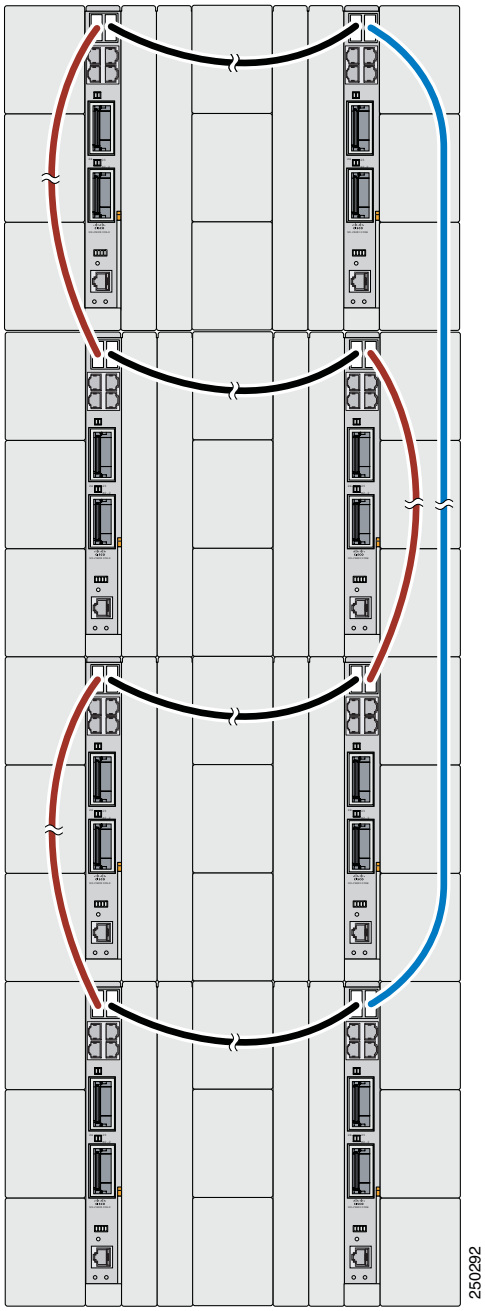
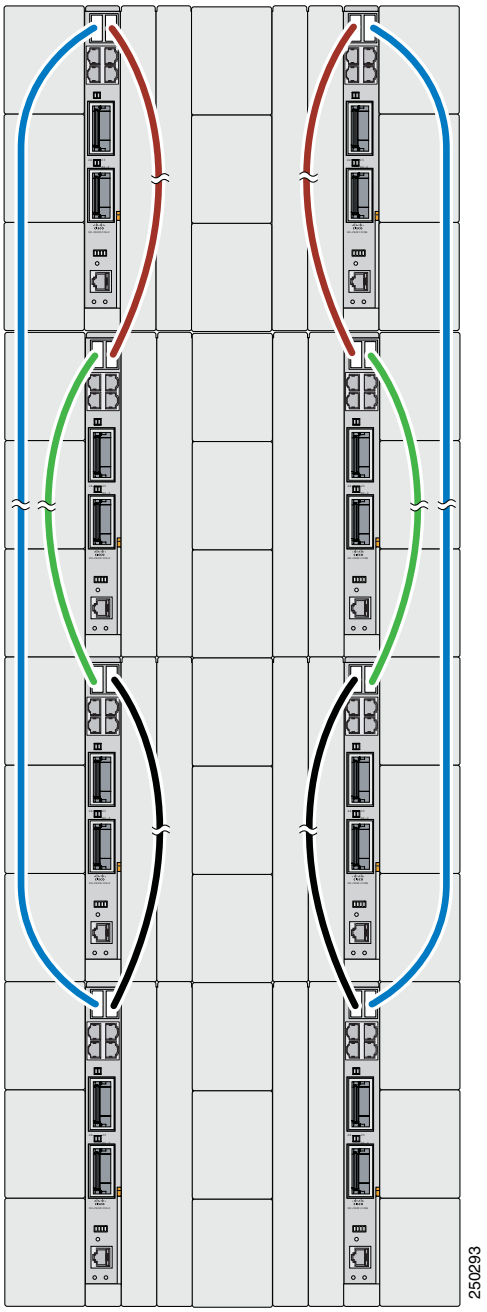


Figure 2-10 is an example of a recommended configuration in which eight switch modules create two separate switch stacks in four blade servers. This configuration provides redundant connections.

Figure 2-10 Stacking up to Eight Switch Modules in Four Server Chassis to Create Two Stacks



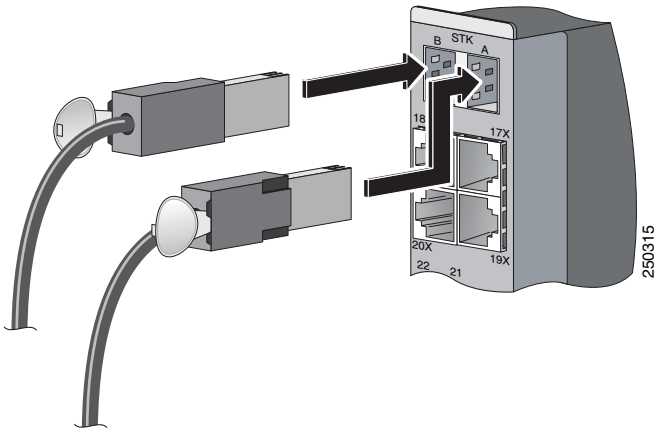
Connecting the StackWise Plus Cables

Follow these steps to connect the StackWise Plus cables:

Step 1 Remove the dust covers from the StackWise Plus cables, and store them for future use.

Step 2 Verify that cables are aligned as shown in Figure 2-11.

Figure 2-11 Inserting the StackWise Plus Cable



Step 3 Insert one end of the cable into the StackWise Plus port on the front panel of the switch. Insert the other end of the cable into the connector on the other switch (see Figure 2-11).

Always use a Cisco-approved StackWise Plus cable to connect the switches.

When you remove the StackWise Plus cables from the connectors, replace the dust covers to protect them from dust.

Caution Removing and installing the StackWise Plus cable can shorten its useful life. Do not remove and insert the cable more often than is absolutely necessary.

Installing Devices in the 10-Gigabit Ethernet Slots

These sections describe how to install and remove X2 transceiver modules, Cisco TwinGig Converter Modules (also known as *converter modules*), and SFP modules:

- Installing X2 Transceiver Modules and Cisco Converter Modules, page 2-22
- Installing SFP Modules, page 2-25

Caution Do not remove the dust plugs from the fiber-optic X2 transceiver modules or SFP modules or the rubber caps from the fiber-optic cable until you are ready to connect the cable. The plugs and caps protect the module ports and cables from contamination and ambient light.

Caution Do not install or remove an X2 or SFP module with the cables attached because of the potential damage to the cables, the cable connectors, or the optical interfaces in the modules. Disconnect all cables before removing or installing the module.

Caution Removing and installing an X2 or SFP module can shorten its useful life. Do not remove and insert any X2 or SFP module more often than is absolutely necessary.

Caution To prevent ESD damage, follow your normal board and component handling procedures when connecting cables to the switch and other devices.

Installing X2 Transceiver Modules and Cisco Converter Modules

These sections describe how to install and remove X2 transceiver modules and the converter modules in the switch module 10-Gigabit Ethernet module slots.

Note Do not remove the dust cover from the converter module until you are ready to install an X2 transceiver or SFP modules. A module or dust cover must be installed in the slot at all times.

The Cisco Catalyst Blade Switch 3032G and 3130G support only the Cisco TwinGig Converter Modules, not the X2 transceiver modules.

Use only Cisco X2 transceiver modules and Cisco TwinGig Converter Modules with the switch module. Each Cisco transceiver and converter module has an internal serial EEPROM that is encoded with security information. This encoding provides a way for Cisco to identify and validate that the module meets the requirements for the switch.

For more information about installing, removing, cabling, and troubleshooting X2 transceiver modules, see the module documentation that shipped with your device. For module cable specifications, see Appendix B, “Connector and Cable Specifications.”

Installing a Transceiver or Converter Module

When you install or remove the converter module, the mode on the switch changes from 10-Gigabit Ethernet to Gigabit Ethernet or the reverse. During this mode change, data traffic on the other switch module uplink ports (X2 transceiver or SFP module ports) might temporarily stop. When you install or remove an X2 transceiver or SFP module, traffic delay does not occur.

To insert an X2 transceiver module or a converter module, follow these steps:

Step 1 Attach an ESD-preventive wrist strap to your wrist and to a bare metal surface.

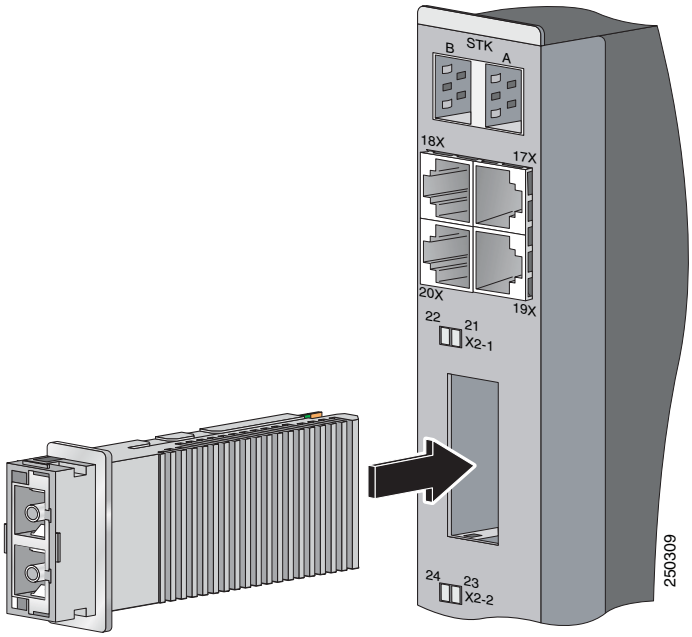
Step 2 Remove the transceiver or converter module from its protective packaging.

Step 3 Align the transceiver module in the module slot (Figure 2-12 and Figure 2-13).

Caution Verify the correct orientation of your module before inserting it into the slot. Incorrect insertion can damage the module.

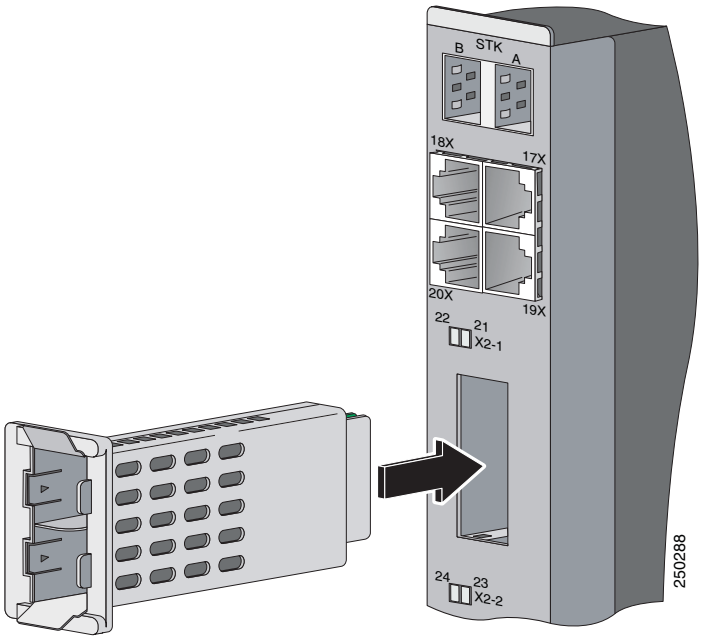
Step 4 Slide the transceiver or converter module into the opening until the back of its faceplate is flush with the switch module faceplate.

Figure 2-12 Installing X2 Transceiver Modules



Caution Do not install the converter module with SFP modules or cables installed. Always remove any cables and modules before installing the converter module in the slot.

Figure 2-13 Installing Converter Modules



Removing a Module

To remove an X2 transceiver module or a converter module, follow these steps:

Step 1 Attach an ESD-preventive wrist strap to your wrist and to a bare metal surface.

Step 2 For X2 transceiver modules, disconnect the cables from the module. For fiber-optic modules, install the optical bore dust plugs.

Step 3 For converter modules, disconnect the cables from the SFP module. Remove the SFP modules from the converter module.

Caution Do not remove the converter module with SFP modules or cables installed. Always remove any cables and modules before removing the converter module from the slot.

Step 4 Carefully pull on the X2 module sleeve, or pinch the tabs on the converter module to disengage it from the slot. Grasp the edges of the module, and carefully slide it out of the slot.

Step 5 Reinstall the dust cover in the 10-Gigabit Ethernet slot.

Caution The dust covers should always remain in place unless a module is installed in the slot.

Step 6 Place the module in an antistatic bag or other protective environment.

Installing SFP Modules

This section describes how to install and remove SFP modules in the 10-Gigabit Ethernet slots. To use SFP modules in the switch, you must have a converter module installed in a 10-Gigabit Ethernet slot.

Caution To avoid damage to the converter module, first install the converter module in the switch 10-Gigabit Ethernet slot before installing the SFP modules.

See the switch module release notes on Cisco.com for the list of SFP modules that the switch module supports. Use only Cisco SFP modules on the switch. Each Cisco module has an internal serial EEPROM that is encoded with security information. This encoding provides a way for Cisco to identify and validate that the SFP module meets the requirements for the switch.

For more information about installing, removing, cabling, and troubleshooting SFP modules, see the module documentation that shipped with your device. For module cable specifications, see Appendix B, "Connector and Cable Specifications."

Installing an SFP Module

To insert an SFP module into a converter module slot, follow these steps:

Step 1 Attach an ESD-preventive wrist strap to your wrist and to a bare metal surface.

Step 2 Remove the Cisco TwinGig Converter Module dust cover and save.

Note The dust cover is an integral part of the airflow function. If you remove the SFP module, you must replace it with the saved dust cover.

Step 3 Install the converter module in the 10-Gigabit Ethernet module slot as described in "Installing a Transceiver or Converter Module" section on page 2-22.

Step 4 Find the send (TX) and receive (RX) markings that identify the top side of the SFP module.

On some SFP modules, the send and receive (TX and RX) markings might be replaced by arrows that show the direction of the connection, either send or receive (TX or RX).

Step 5 If the SFP module has a bale-clasp latch, move it to the open, unlocked position.

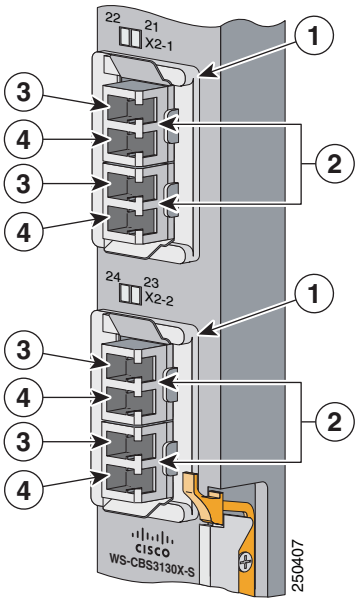
Step 6 Align the SFP module in the converter module opening. When installing a module in the upper module slot (slot 1), position the SFP module face up. When using the lower module slot (slot 2), position the SFP module face down.

Step 7 Slide the SFP module into the opening until you feel the connector on the module snap into place (Figure 2-14).

Step 8 If the module has a bale-clasp latch, close it to lock the SFP module in place.

Step 9 Remove the SFP dust plugs and save. Install the SFP cables.

Figure 2-14 Converter Module with SFP Modules Installed



1	Converter modules	**3**	Send (TX) optical bore
2	SFP modules	**4**	Receive (RX) optical bore

Removing an SFP Module

To remove an SFP module from a module slot, follow these steps:

Step 1 Attach an ESD-preventive wrist strap to your wrist and to a bare metal surface.

Step 2 Disconnect the cable from the SFP module. For reattachment, note which cable connector plug is send (TX) and which is receive (RX).

Step 3 Insert a dust plug into the optical ports of the SFP module to keep the optical interfaces clean.

Step 4 If the module has a bale-clasp latch, pull the bale out and down to eject the module. If the bale-clasp latch is obstructed and you cannot use your index finger to open it, use a small, flat-blade screwdriver or other long, narrow instrument to open the bale-clasp latch.

Step 5 Grasp the SFP module, and carefully remove it from the module slot.

Step 6 Place the removed SFP module in an antistatic bag or other protective environment.

Caution Category 5e and Category 6 cables can store high levels of static electricity. Always ground the cables to a suitable and safe earth ground before connecting them to the switch or other devices.

Connecting to 10/100/1000 Ethernet Ports

The 10/100/1000 Ethernet ports use standard RJ-45 connectors with Ethernet pinouts. The maximum cable length is 328 feet (100 meters). The 100BASE-TX and 1000BASE-T traffic requires Category 5, Category 5e, or Category 6 UTP cable. The 10BASE-T traffic can use Category 3 or Category 4 cable.

The autonegotiation feature is enabled by default on the switch. At this setting, the switch ports configure themselves to operate at the speed of attached device. If the attached device does not support autonegotiation, you can explicitly set the switch port speed and duplex parameters. To maximize performance, either let the ports autonegotiate both speed and duplex, or set the port speed and duplex parameters on both ends of the connection.

For simplified cabling, the automatic medium-dependent interface crossover (auto-MDIX) feature is enabled by default on the switch. With auto-MDIX enabled, the switch detects the required cable type for copper Ethernet connections and configures the interface accordingly. Therefore, you can use either a crossover or a straight-through cable for connections to a switch 10/100/1000 Ethernet port regardless of the type of device on the other end of the connection.

See the switch software configuration guide or the switch command reference on Cisco.com for more information about enabling or disabling autonegotiation and auto-MDIX.

If auto-MDIX is disabled, use the guidelines in Table 2-1 to select the correct cable for connecting the switch 10/100/1000 Ethernet ports to other devices. See the "Cable and Adapter Specifications" section on page B-4 for cable-pinout descriptions.

Table 2-1 Recommended Ethernet Cables (When Auto-MDIX is Disabled)

Device	Crossover Cable[1]	Straight-Through Cable[1]
Switch to switch	Yes	No
Switch to hub	Yes	No
Switch to computer or server	No	Yes
Switch to router	No	Yes
Switch to IP phone	No	Yes

1. 100BASE-TX and 1000BASE-T traffic requires twisted four-pair, Category 5, Category 5e, or Category 6 cable. 10BASE-T traffic can use Category 3 or Category 4 cable.

Where to Go Next

If the default configuration is satisfactory, the switch module does not need further configuration. You can use any of these management options to change the default configuration:

- Using the Device Manager

  Access the device manager through a web browser from anywhere in your network. See "Using the Device Manager" section on page 2-16 for instructions.

- Using the Command-Line Interface

  The switch module CLI is based on Cisco IOS software and enhanced to support desktop-switching features. You can fully configure and monitor the switch module from the CLI. You can access the CLI either by connecting your management station directly to the switch module console port or by using Telnet from a remote management station. Refer to the switch module command reference on Cisco.com for more information.

- Using SNMP

  You can use SNMP management applications such as CiscoWorks Small Network Management Solution (SNMS) to configure and manage the switch module. You also can manage it from an SNMP-compatible workstation that is running platforms such as HP OpenView or SunNet Manager.

- Using the Dell CMC

  See the Dell documentation for more information.

CHAPTER 3

Troubleshooting

This chapter describes these topics for troubleshooting problems:

- Diagnosing Problems, page 3-1
- Clearing the Switch IP Address and Configuration, page 3-4
- Replacing a Failed Stack Member, page 3-5
- Locating the Switch Serial Number, page 3-5

Diagnosing Problems

The LEDs on the switch front panel provide troubleshooting information. They show power-on self-test (POST) failures, port-connectivity problems, and overall switch performance. You can also get statistics from the CLI or from an SNMP workstation. See the software configuration guide and the switch command reference on Cisco.com or the documentation that came with your SNMP application for more information.

This section includes these troubleshooting topics:

- "Verify the Switch POST Results" section on page 3-1
- "Look at the Switch LEDs" section on page 3-2
- "Confirm the Switch Connections" section on page 3-2
- "Verify the Switch Performance" section on page 3-4

Verify the Switch POST Results

As the switch powers on, it begins the POST, a series of tests that runs automatically to ensure that the switch functions properly. It might take several minutes for the switch to complete POST.

When the switch begins POST, the system LED slowly blinks green. When POST completes, the system LED blinks amber. If POST fails, the system LED remains amber. If POST completes successfully, the system LED rapidly blinks green.

Note POST failures are usually fatal. Contact your Cisco technical support representative if your switch does not pass POST.

Look at the Switch LEDs

You must have physical access to the switch to do this. Look at the port LEDs for troubleshooting information about the switch. See the "LEDs" section on page 1-4 for a description of the LED colors and their meanings.

Confirm the Switch Connections

Review this section when troubleshooting switch connectivity problems.

Bad or Damaged Cable

Always test the cable for marginal damage or failure. A cable might be sufficient to connect at the physical layer but then cause packet corruption because of subtle damage to its wiring or connectors. You can identify this situation because the port will have many packet errors, or the port will constantly lose and regain link. In these situations:

- Exchange the copper or fiber-optic cable with a known, good cable.
- Look for broken or missing pins on cable connectors.
- Rule out any insufficient patch panel connections or media convertors between the source and the destination. If possible, bypass the patch panel or eliminate faulty media convertors, such as fiber-optic-to-copper convertors.
- Try using the cable in another port or interface to see if the problem also exists there.

Ethernet and Fiber Cables

Make sure that you have the correct cable type for the connection:

- For Ethernet, use Category 3 copper cable for 10 Mb/s unshielded twisted pair (UTP) connections. Use either Category 5, Category 5e, or Category 6 UTP for 10/100 or 10/100/1000 Mb/s connections.
- For fiber-optic connectors, verify that you have the correct cable for the distance and port type. Make sure that the ports on the connected device match and that they use the same type of encoding, optical frequency, and fiber type. For more information about cabling, see Appendix B, "Connector and Cable Specifications."
- For copper connections, determine if a crossover cable was used when a straight-through cable was required, or the reverse. Enable auto-MDIX on the switch, or replace the cable.

Link Status

Verify that both sides have link. A single broken wire or one shutdown port can cause one side to show link, but the other side does not have link.

A link LED does not guarantee that the cable is fully functional. The cable might have encountered physical stress that causes it to function at a marginal level. If the link light for the port does not come on:

- Connect the cable from the switch to a known, good device.
- Make sure that both ends of the cable are connected to the correct ports.
- Verify that both devices have power.

- Verify that you are using the correct cable type. See Appendix B, "Connector and Cable Specifications," for more information.
- Test for loose connections. Sometimes a cable appears to be seated, but is not. Disconnect and then reconnect the cable.

SFP Module Port Issues

Use only Cisco small form-factor pluggable (SFP) modules on the switch. Each Cisco module has an internal serial EEPROM that is encoded with security information. This encoding provides a way for Cisco to identify and validate that the module meets the requirements for the switch. Test these items:

- Bad or wrong SFP module. Exchange the suspect module with a known, good module. Verify that this module supports this platform. See the "10-Gigabit Ethernet Module Slots" section on page 1-4 for a list of supported SFP modules.
- Use the **show interfaces** privileged EXEC command to determine the port or module error-disabled, disabled, or shutdown status. Re-enable the port if necessary.
- Make sure that all fiber-optic connections are properly cleaned and securely connected.

Port and Interface Settings

Verify that the port or interface is not disabled or for some reason powered down. If a port or interface is manually shut down on one or the other side of the link, the link does not come up until you re-enable the port. Use the **show interfaces** privileged EXEC command to determine the port or interface error-disabled, disabled, or shutdown status on both sides of the connection. If necessary, re-enable the port or the interface.

Ping the End Device

Test the end device by pinging it from the directly connected switch first, and then work your way back port by port, interface by interface, trunk by trunk, until you find the source of the connectivity issue. Make sure that each switch can identify the end device MAC address in its Content-Addressable Memory (CAM) table.

Spanning Tree Loops

Spanning Tree Protocol (STP) loops can cause serious performance issues that might appear to be port or interface problems. In this situation, the switch bandwidth is used repeatedly by the same frames, crowding out legitimate traffic.

A unidirectional link can cause loops. This occurs when the traffic that the switch sends is received by its neighbor, but the switch does not receive the traffic that is sent from the neighbor. A broken fiber-optic cable, other cabling, or a port issue could cause this one-way communication.

You can enable the UniDirectional Link Detection (UDLD) protocol on the switch to help identify difficult-to-find unidirectional link problems. UDLD supports a normal mode of operation (the default) and an aggressive mode. In normal mode, UDLD detects unidirectional links because of incorrectly connected interfaces on fiber-optic connections. In aggressive mode, UDLD also detects unidirectional links caused by one-way traffic on fiber-optic and twisted-pair links and by incorrectly connected interfaces on fiber-optic links. For information about enabling UDLD on the switch, see the "Understanding UDLD" section in the software configuration guide.

Verify the Switch Performance

Review this section when you troubleshoot switch performance problems.

Speed, Duplex, and Autonegotiation

If the port statistics show a large number of alignment errors, frame check sequence (FCS), or late-collisions errors, a speed or duplex mismatch might be the problem.

A common issue with speed and duplex occurs when the duplex settings are mismatched between two switches, between a switch and a router, or between the switch and a workstation or server. This can happen when you manually set the speed and duplex or because of autonegotiation issues between the two devices.

These circumstances can result in a mismatch:

- A manually set speed or duplex parameter is different from the manually set speed or duplex parameter on the connected port.
- A port is set to autonegotiate, and the connected port is set to full duplex with no autonegotiation.

To maximize switch performance and ensure a link, follow one of these guidelines when you set or change the settings for duplex and speed:

- Let both ports autonegotiate both speed and duplex.
- Manually set the speed and duplex parameters for the ports on both ends of the connection.
- If a remote device does not autonegotiate, configure the duplex settings on the two ports to match. The speed parameter can adjust itself even if the connected port does not autonegotiate.

Autonegotiation and Network-Interface Cards

Problems sometimes occur between the switch and third-party network-interface cards (NICs). By default, the switch ports and interfaces are set to autonegotiate. It is common for devices such as laptop computers or other devices to also be set to autonegotiate, yet sometimes autonegotiation issues occur.

To troubleshoot autonegotiation problems, try manually setting both sides of the connection. If this does not solve the problem, the firmware or software on your NIC might be causing the problem. Upgrade the NIC driver to the latest version available from the manufacturer.

Cabling Distance

If the port statistics show excessive FCS, late-collision, or alignment errors, verify that the cable distance from the switch to the connected device meets the recommended guidelines. See the "Cable and Adapter Specifications" section on page B-4 for cabling guidelines.

Clearing the Switch IP Address and Configuration

This section describes how to reset the switch by rerunning the initial configuration dialog (system configuration dialog). These are reasons why you might want to reset the switch:

- You installed the switch in your network and cannot connect to it because you assigned the wrong IP address.
- You want to clear all the configuration settings from the switch and assign a new IP address.

Caution This procedure clears the IP address and all configuration information stored on the switch. Do not follow this procedure unless you want to completely reconfigure the switch.

To reset the switch:

1. At the switch prompt, enter **enable**, and press **Return** or **Enter**.
2. At the Privileged EXEC prompt, switch#, enter setup and press **Return** or **Enter**.

The switch displays the prompt to run the initial configuration dialog. The switch now behaves like an unconfigured switch.

Replacing a Failed Stack Member

If you need to replace a failed stack member, you can hot swap or replace the switch by following this procedure:

1. Get a replacement switch that has the same model number as the failed switch.
2. Remove the failed switch.
3. Install the replacement switch in the blade server.

   If you manually set the member numbers for any members in the stack, you need to manually assign the replacement switch with the same member number as the failed switch. To manually assign the member number, install the replacement switch and wait for it to boot up. Use the CLI to manually assign the member number (see the software configuration guide for instructions) before you connect the switch to the stack.
4. Connect the switch to the stack.
5. Reinstall any transceiver modules and cable connections.
6. Make the same Gigabit Ethernet connections on the replacement switch that were on the failed switch.
7. Power on the replacement switch.

The replacement switch will have the same configuration for all the interfaces as the failed switch and will function the same as the failed switch.

Locating the Switch Serial Number

If you contact Cisco Technical Assistance, you need to know the serial number of your switch. Use these figures to locate the serial number on your switch. You can also use the **show version** command to get the serial number.

- “Serial Number Location on the Cisco Catalyst Blade Switch 3130 for Dell”
- “Serial Number Location on the Cisco Catalyst Blade Switch 3032 for Dell”

Figure 3-1 Serial Number Location on the Cisco Catalyst Blade Switch 3130 for Dell

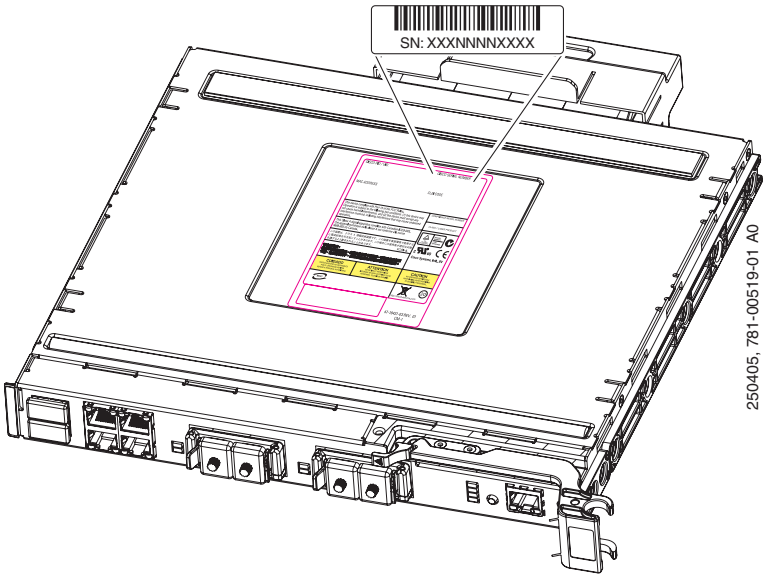
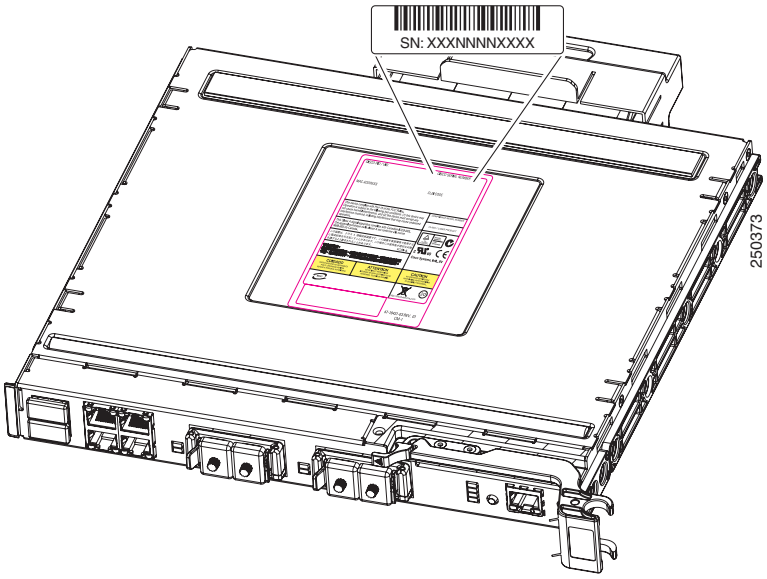


Figure 3-2 Serial Number Location on the Cisco Catalyst Blade Switch 3032 for Dell



APPENDIX A

Technical Specifications

This appendix lists the switch module technical specifications in Table A-1.

Table A-1 Technical Specifications for the Cisco Catalyst Blade Switch 3130 for Dell and the Cisco Catalyst Blade Switch 3032 for Dell

Environmental Ranges	
Operating temperature	32 to 104°F (0 to 40°C)
Storage temperature	–4 to 158°F (–20 to 70°C)
Relative humidity	10 to 85% (noncondensing)
Storage relative humidity	5 to 95% (noncondensing)
Operating altitude	Up to 10,000 feet (3048 meters)
Storage altitude	Up to 30,000 feet (4572 meters)
Physical Dimensions	
Weight	4.7 lbs (3.13 kg) with X2 modules installed
Dimensions (H x D x W)	1.1 x 9.1 x 10.25 in. (2.8 x 23.1 x 26 cm)

See the *Regulatory Compliance and Safety Information for the Cisco Catalyst Blade Switch 3000 Series for Dell* for information about safety compliance and electromagnetic compatibility.

APPENDIX B

Connector and Cable Specifications

This appendix describes the cables and adapters that you use to connect that you use to connect the switch module to other devices. This appendix includes these sections:

- Connector Specifications, page B-1
- Cable and Adapter Specifications, page B-4

Connector Specifications

These sections describe the connectors used with the switch:

- 10/100/1000 Ports, page B-1
- 10-Gigabit Ethernet Module Interfaces, page B-3
- Cisco TwinGig Converter Module Ports, page B-3
- Console Port, page B-4

10/100/1000 Ports

The 10/100/1000 Ethernet ports on the switch module use standard RJ-45 connectors. Figure B-1 shows the pinout.

Note You can use the **mdix auto** interface configuration command in the CLI to enable the automatic medium-dependent interface crossover (auto-MDIX) feature. When the auto-MDIX feature is enabled, the switch module detects the required cable type for copper Ethernet connections and configures the interfaces accordingly. Therefore, you can use either a crossover or a straight-through cable for connections to a copper 10/100/1000 or 1000BASE-T SFP module port on the switch module, regardless of the type of device on the other end of the connection.

For configuration information for this feature, refer to the switch module software configuration guide or the switch module command reference.

Connecting to 10BASE-T- and 100BASE-TX-Compatible Devices

When connecting the ports to 10BASE-T- and 100BASE-TX-compatible devices, such as servers, workstations, and routers, you can use a two or four twisted-pair, straight-through cable wired for 10BASE-T and 100BASE-TX. Figure B-6 shows the two twisted-pair, straight-through cable schematics. Figure B-8 shows the four twisted-pair, straight-through cable schematics.

When connecting the ports to 10BASE-T- and 100BASE-TX-compatible devices, such as switches or repeaters, you can use a two or four twisted-pair, crossover cable. Figure B-7 shows the two twisted-pair, crossover cable schematics. Figure B-9 shows the four twisted-pair, crossover cable schematics.

You can use Category 3, 4, or 5 cabling when connecting to 10BASE-T-compatible devices. You must use Category 5 cabling when connecting to 100BASE-TX-compatible devices.

Connecting to 1000BASE-T Devices

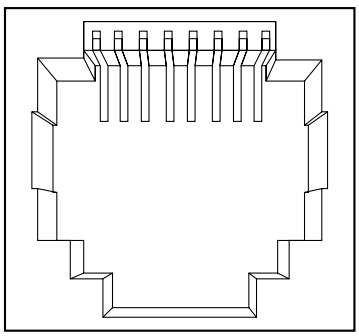
When connecting the ports to 1000BASE-T devices, such as servers, workstations, and routers, you must use a four twisted-pair, Category 5, straight-through cable wired for 10BASE-T, 100BASE-TX, and 1000BASE-T. Figure B-8 shows the straight-through cable schematics.

When connecting the ports to other devices, such as switches or repeaters, you must use a four twisted-pair, Category 5, crossover cable. Figure B-9 shows the crossover cable schematics.

Note Be sure to use a four twisted-pair, Category 5 cable when connecting to a 1000BASE-T-compatible device.

Note Use a straight-through cable to connect two ports only when one port is designated with an X. Use a crossover cable to connect two ports when both ports are designated with an X or when both ports do not have an **X**.

Figure B-1 10/100/1000 Port Pinouts

Pin	Label	1 2 3 4 5 6 7 8
1	TP0+	
2	TP0-	
3	TP1+	
4	TP2+	
5	TP2-	
6	TP1-	
7	TP3+	
8	TP3-	

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10-Gigabit Ethernet Module Interfaces

The 10-Gigabit Ethernet modules use SC connectors or Infiniband 4x connectors, as shown in Figure B-2 and Figure B-3.

Figure B-2 10-Gigabit Ethernet Optical Module SC Connector

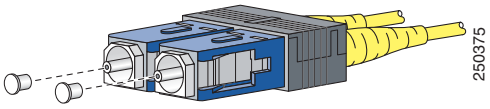
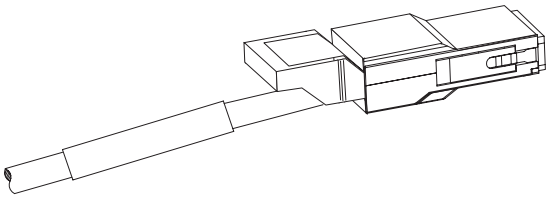


Figure B-3 10-Gigabit Ethernet Infiniband 4x Connector



Cisco TwinGig Converter Module Ports

The Cisco TwinGig Converter Module uses SFP modules for fiber-optic and copper uplink ports. Figure B-4 and Figure B-5 show the SFP module connectors.

Figure B-4 Duplex LC Cable Connector

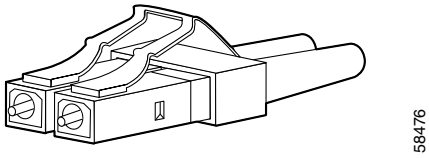
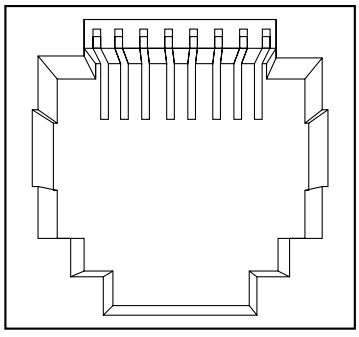


Figure B-5 Copper SFP Module RJ-45 Connector

Pin	Label	1 2 3 4 5 6 7 8
1	TP0+	
2	TP0-	
3	TP1+	
4	TP2+	
5	TP2-	
6	TP1-	
7	TP3+	
8	TP3-	



Console Port

The console port uses an 8-pin RJ-45 connector, which is described in Table B-4 and Table B-5. The supplied RJ-45-to-DB-9 adapter cable is used to connect the console port of the switch module to a console PC. You need to provide a RJ-45-to-DB-25 female DTE adapter if you want to connect the switch module console port to a terminal. You can order a kit (part number ACS-DSBUASYN=) containing that adapter from Cisco. For console port and adapter pinout information, see Table B-4 and Table B-5.

Cable and Adapter Specifications

These sections describe the cables and adapters used with the switch module.

- 10-Gigabit Ethernet X2 Transceiver Module Cable Specifications, page B-4
- SFP Module Cable Specifications, page B-6
- Two Twisted-Pair Cable Pinouts, page B-6
- Four Twisted-Pair Cable Pinouts for 1000BASE-T Ports, page B-7
- Identifying a Crossover Cable, page B-8
- Console Port Adapter Pinouts, page B-8

10-Gigabit Ethernet X2 Transceiver Module Cable Specifications

Table B-1 lists the port cabling specifications for the 10-Gigabit Ethernet X2 transceiver modules. Each port must match the wave-length specifications on the other end of the cable, and for reliable communications, the cable must not exceed the stipulated cable length. Table B-2 lists the transceiver optical send and receive specifications.

Table B-1 X2 Transceiver Port Cabling Specifications

X2 Product Number	Wavelength (nm)	Cable Type	Core Size (microns)	Modal Bandwidth (MHz/km)	Maximum Cabling Distance
X2-10GB-SR	850	MMF	62.5 62.5 50.0 50.0 50.0	160 200 400 500 2000	85 feet (26 m) 108 feet (33 m) 217 feet (66 m) 269 feet (82 m) 984 feet (300 m)
X2-10GB-LX4	1310	MMF[1]	62.5 50.0 50.0	500 400 500	984 feet (300 m) 787 feet (240 m) 984 feet (300 m)

Table B-1 X2 Transceiver Port Cabling Specifications (continued)

X2 Product Number	Wavelength (nm)	Cable Type	Core Size (microns)	Modal Bandwidth (MHz/km)	Maximum Cabling Distance
X2-10GB-CX4	—	InfiniBand (copper)	—	—	49 feet (15 m)
X2-10GB-LRM	1310	MMF	62.5	160	220 m (722 feet)
			62.5	200	220 m (722 feet)
			50.0	400	220 m (722 feet)
			50.0	500	220 m (722 feet)
			50.0	1500	220 m (722 feet)

1. Mode conditioning patch cord is recommended for MMF applications.

Table B-2 X2 Transceiver Optical Send and Receive Specifications

X2 Product Number	Transceiver Type	Transmit Power (dBm)	Receive Power (dBm)	Transmit and Receive Wavelength (nm)
X2-10GB-SR	10GBASE-SR, 850-nm MMF	–1[1] (max) –7.3 (min)	–1.0 (max) –9.9 (min)	840 to 860
X2-10GB-LX4	10GBASE-LX4 WWWDM 1300-nm MMF	–0.5 per lane (max) —	–0.5 (max) –14.4 per lane	Four lanes; overall range: 1269 to 1356
X2-10GB-LRM	10GBASE-LR, 1310-nm MMF	0.5 (max) –6.5 (min)	0.5 (max) –8.4 (min average) and –6.4 (min in OMA)	1260 to 1355

1. The launch power shall be the lesser of the Class 1 safety limit or the maximum receive power. Class 1 laser requirements are defined by IEC 60825-1: 2001.

SFP Module Cable Specifications

Table B-3 lists the cable specifications for the fiber-optic SFP module connections. Each port must match the wave-length specifications on the other end of the cable, and for reliable communications, the cable must not exceed the required cable length. Copper 1000BASE-T SFP transceivers use standard four twisted-pair, Category 5 (or greater) cable at lengths up to 328 feet (100 meters).

Table B-3 Fiber-Optic SFP Module Port Cabling Specifications

SFP Module	Wavelength (nanometers)	Fiber Type	Core Size/Cladding Size (micron)	Modal Bandwidth (MHz/km)[1]	Cable Distance
1000BASE-SX (GLC-SX-MM)	850	MMF	62.5/125 62.5/125 50/125 50/125	160 200 400 500	722 feet (220 m) 902 feet (275 m) 1640 feet (500 m) 1804 feet (550 m)
1000BASE-T (GLC-T)	N/A				

1. Modal bandwidth applies only to multimode fiber.

Two Twisted-Pair Cable Pinouts

Figure B-6 and Figure B-7 show the schematics of two twisted-pair cables for connecting to 10BASE-T- and 100BASE-TX-compatible devices.

Figure B-6 Two Twisted-Pair Straight-Through Cable Schematic

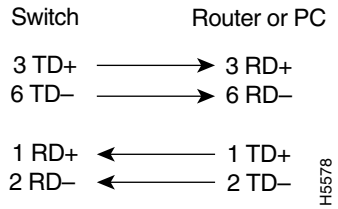
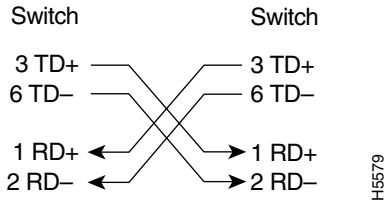


Figure B-7 Two Twisted-Pair Crossover Cable Schematic



Four Twisted-Pair Cable Pinouts for 1000BASE-T Ports

Figure B-8 and Figure B-9 show the schematics of four twisted-pair cables for 10/100/1000 ports on the switch module.

Figure B-8 Four Twisted-Pair Straight-Through Cable Schematic for 10/100/1000 Ports

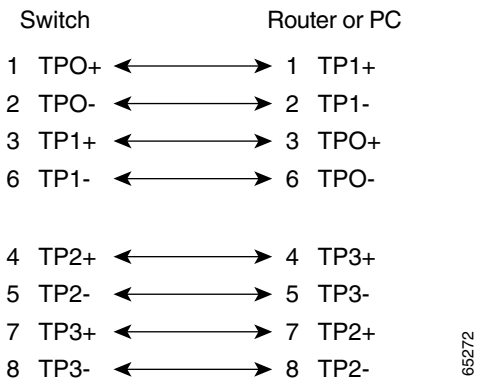
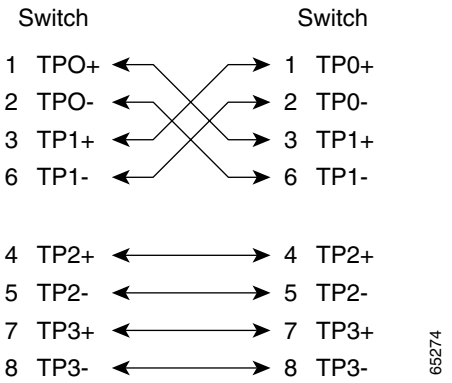


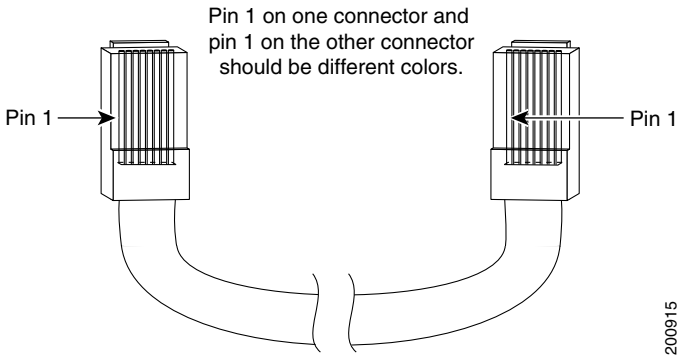
Figure B-9 Four Twisted-Pair Crossover Cable Schematics for 10/100/1000 Ports



Identifying a Crossover Cable

To identify a crossover cable, compare the two modular ends of the cable. Hold the cable ends side-by-side, with the tab at the back. The wire connected to the pin on the outside of the left plug should be a different color from the wire connected to the pin on the inside of the right plug. (See Figure B-10.)

Figure B-10 Identifying a Crossover Cable



Console Port Adapter Pinouts

Table B-4 lists the pinouts for the console port, the RJ-45-to-DB-9 adapter cable, and the console device.

Table B-4 Console Port Signaling Using a DB-9 Adapter

Switch Console Port (DTE)	RJ-45-to-DB-9 Terminal Adapter	Console Device
Signal	**DB-9 Pin**	**Signal**
RTS	8	CTS
DTR	6	DSR
TxD	2	RxD
GND	5	GND
GND	5	GND
RxD	3	TxD
DSR	4	DTR
CTS	7	RTS

Table B-5 lists the pinouts for the console port, RJ-45-to-DB-25 female DTE adapter, and the console device.

Note The RJ-45-to-DB-25 female DTE adapter is not supplied with the switch module. You can order a kit (part number ACS-DSBUASYN=) containing this adapter from Cisco.

Table B-5 Console Port Signaling Using a DB-25 Adapter

Switch Console Port (DTE)	RJ-45-to-DB-25 Terminal Adapter	Console Device
Signal	**DB-25 Pin**	**Signal**
RTS	5	CTS
DTR	6	DSR
TxD	3	RxD
GND	7	GND
GND	7	GND
RxD	2	TxD
DSR	20	DTR
CTS	4	RTS

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